THOMPSON

Comparison in methods of feeding and fattening Swine

Animal Husbandry

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Comparison in Methods of Feeding
and Fattening Swine.

by

Elmer John Thompson

Thesis for the degree of Bachelor of Science
in Animal Husbandry
in the
College of Agriculture
of the
University of Illinois

June 1, 1910.

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LOT I.

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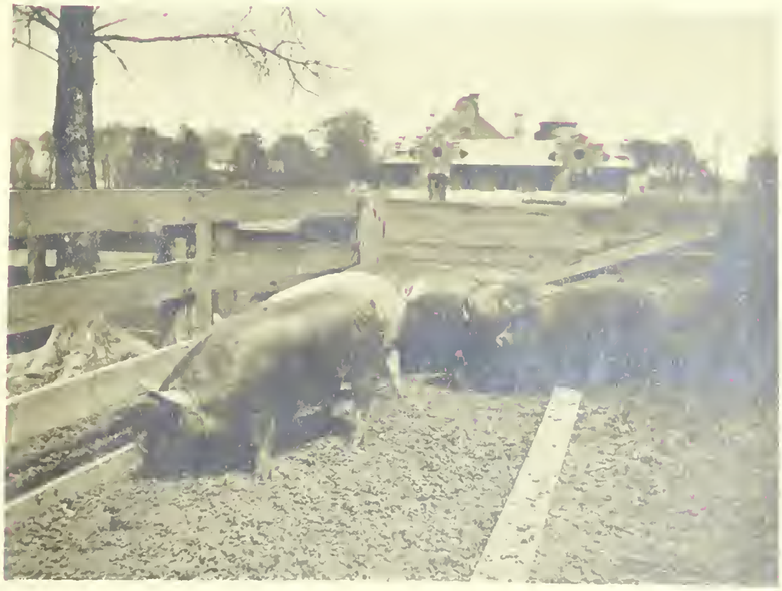

LOT 2.

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INTRODUCTION

The purpose of the experiment was to determine the result of feeding in a comparative way according to the feeding standard devised by the German Investigators, Wolff and Lahmann and the one by Professor Wm. Dietrich, as presented in the Illinois Agricultural Experiment Station Circular number 126. The object was to show which would be the better and the more economical in the end.

As the experiment was one entirely of a practical nature it took into account only the amount of feed eaten and the live weight of the hogs at the end of each week. No account of the feed that was not digested was taken into consideration.

PLAN

The plan of the experiment was to take two lots of pigs as nearly equal as was possible to begin the experiment. This was done by selecting six pigs for each of the two lots as nearly uniform as possible. The pigs were to be fed three times per day and to have their water combined with the feed in Lot II and free access to water in Lot I. The weighing of the pigs was to be done each Saturday morning before their morning feed and their following weeks ration computed by an estimate on their advance gain for that week. This plan was followed during their entire feeding period of six months.

DETAILS OF THE EXPERIMENT

On October 30, 1909 the pigs were selected, and each lot weighed exactly 169 pounds. The pigs used were five borrows and one sow pig in each lot.

They were fed at the Beef Cattle Sheds in lots about 60x80 feet and had A shaped cots which sheltered them from the weather. These cots were about 8x10 feet with dirt floor, the door opening to the south and a small opening near the back for ventilation on the north. The door was never closed and the floor of the cot was always bedded with dry straw as often as was necessary during the entire period.

The feeding trough was a V shaped trough made of hard pine and placed directly below a swinging panel of the fence on the west side of the lot. This swinging panel enabled the feeder to put the feed into the trough to the pigs by swinging it back over the inside of the trough and fastening it there until all the feed was placed, then released and swung out over the outer edge. Here it was fastened until the next feeding time. In this way the pigs never interfered with putting feed in the trough and all were able to start eating at the same time.

The feed consisted during the whole experiment of ground corn(or shelled corn when they became stale on ground corn) Red Dog Flour Tankage and Wheat Bran. Besides these feeds the pigs had access to a trough containing bane meal, Charcoal, air slaked lime, and salt placed in separate divisions.

The method in feeding was to figure the days ration and then divide that into thirds and each third was fed at one feed. The morning feed being given them at about 6.30, the noon about 12 o'clock and the evening feed at 5.30 or during the short days of winter just before it became dark.

The feed was mixed at each feeding time and stirred thoroughly in order that the slop should have the same consistency throughout. Each lot was fed from the same bucket each time so that if any particle of feed remained in the bucket it was sure to go in on the next feed. The feed was seldom if ever rooted from the trough and on several occasions feed was weighed back and not counted as being eaten.

During the cold winter weather the water which they reserved in their slop was heated in a large water heater so as to save the pigs the extra energy of heating up this amount of cold water and feed in their stomachs. This practice of heating the water seemed to stimulate the pigs appitites quite a great deal and prevented the slop from freezing before they were able to eat their feed. The pigs stood on a platform while eating their feed and on this was given them the ashes from the water heated in addition to the other substances.

The pigs never had access to grass as the lots were bare all winter and spring. The pigs very seldom took a bite of grass when driven across the grass on each saturday morning to the scales where they were weighed.

Before being started in on the experiment the pigs ran with their dams and ate with them the following ration Corn 1.2

pounds. Red Dog Flour .2 pound, Tankage .1 pound, Wheat Bran .3 pound, Skim and butter milk combined 2. pounds and Water 6. pounds per hundred pounds live weight of Sow and pigs.

At the time of starting the pigs ranged in age from six weeks to two months and all ate heartily with their dams before they were removed for the experiment. The lots were changed at the end of the second week and five pigs from one litter of Duroc Jersey. Berkshire crosses were substituted for some pure bred Berks. which were to be used in a nutrition experiment. This change caused an increase of two pounds in Lot II while Lot I remained exactly the same as though no change had been made. Lot I looked to be the more even at the beginning of the experiment and showed slightly better form and shape over Lot II. The individual pigs at the beginning of the experiment after the change, were of the following breeding. Pig number one was a pure bred large Yorkshire which was castrated during the first week of the experiment as was his litter mate in lot II. As these experiments proceeded this one pig developed signs of delicacy and never thrived as well as the others in his lot. Pig number 2 a pure bred Berkshire developed well and put on fat early in the experiment to a marked extend. He was thrifty and strong until the last three weeks of the experiment when he became nerveous and found difficulty in traveling from the pen to the scales a distance of about 100 yards. Be remained thrifty and continued to eat heartily and was in fine market condition at the close of the experiment. The fact that this pig was in this condition was attributed to the method of feeding as was the general unthriftiness of this Lot at

the close with the single exception of one pig number 5. Pig number 3, a pure bred Berkshire Barrow, was rather small but was long and had a desirable form for storing plenty of fat. He proceded fairly well but was unable to make as large gains as some of the others.

Pig number 4 a Duroc Berkshire cross bred sow came along well during the first 4 1/2 months of the experiment, but in the remaining month and a half became unthrifty and failed to eat as she should. At the close she resembled more the American Bacon hog than she did a finished fat hog.

Pig number 5, also Duroc Berkshire cross bred and a litter mate to the sow, made the best gains of any pig in either lot. He was thrifty and always remained to clean up the feed when the others were through. At the close he weighed 326 pounds. The digestive power and the constitution that this pig displayed showed him to be a wonderful pig.

Pig number 6, a pure bred Berkshire, did well but for some reason became sick during the extremely cold weather and died on January 6th, he weighed 56 pounds at this time.

IN LOT II

Pig number 1, a pure bred Yorkshire and a litter mate to number 1 of Lot I, was a fine thrifty Barrow being castrated during the first week of the Experiment. He ate well putting on the fat and being exceedingly lively and thrifty all through the experiment.

Pig number 2, a pure bred Berkshire barrow the smallest pig in the lot at the beginning, was thrifty and early in the experiment began to show that he had the desirable quality of storing fat on his carcass. He developed an enormous belly and at the end of the experiment had the greatest width of back of all the pigs in either lot. He was short, however, and so did not weigh as much as some of the longer hogs.

Pig number 3, a pure bred Berkshire barrow, early in the experiment showed signs of not being as thrifty as the other hogs in this lot and so did not do very well until near the close when he began to lay on some fat but finished only in fair condition. This hog was the poorest one in Lot II.

Pig number 4, a sow of Duroc Jersey and Berkshire cross and a litter mate to number 5, early developed signs of putting on fat and was in good condition all through the experiment. In the latter part she was in heat but continued to gain and was in excellent condition for market at the close of the experiment.

Pig number 5, a Barrow, a litter mate to numbers 4 and 6 Lot II and 4 and 5 Lot I, was thrifty all through the experiment and finished a fat market hog.

Pig number 6, a Barrow litter mate to numbers 4 and 5 of Lot II and numbers 4 and 5 of Lot I, gave promise of being the best in the Lot II early in the experiment. He was long, deep and broad and laid on the fat in abundance. He was easily the best and largest feeder in this Lot, and finished the experiment weighing 306 pounds.

In looking over the whole number of pigs of each lot, it seemed that lot I would end the better of the two lots. But, owing to the methods of feeding and the amount of feed that the two lots received, the unthriftiness of lot I is atributed to the fact that the bulk of feed and the high per cent of protein in the beginning of the experiment were the factors that influenced the poor outcome of the individuals.

The weather at the beginning of the experiment was hardly conducive to best results especially in Lot II, for this lot was to receive no water except that in their feed. But the rain water at this time could be drunk by the pigs of either lot for it gathered and stood in the small holes for a number of days. The pigs tended to scour at these rainy times and this was attributed to their drinking an excess of water. This access to water did not hinder the results of Lot I for they were to have access to water during their whole six months of feeding only getting enough water with their feed to make it polatible and easily eaten.

During the snowy weather of winter as well as the rainy weather of the fall and spring, both troughs were cleaned of snow and water before putting in any feed so that the proportion of water to feed was the same always and followed the amounts the standards called for.

It proved next to impossible to get the exact amount of water that Lot I drank for often they spilled what was put before them in their water trough and the snow and rain often filled the trough so that at the end of a number, of weeks the water weighed

back was more than that put before them. In the freezing weather of winter too enough water had to be fed in form of slop to satisfy their thirst.

It proved nearly as hard to keep an account of the mineral substances that each lot ate for the wind, water and snow blew and washed much away to say nothing of that which the pigs rooted out of the trough into the mud.

On an average about 3 to 5 pounds of charcoal per week was placed in each lot and from 1 to 2 pounds of bone meal, 1 to 4 pounds of air slaked lime and 2 to 5 pounds of salt. The pigs ate no small amount of the charcoal and bone meal, a much smaller quanity of salt and very little of the lime placed before them. The remaining portion of this substance was wasted.

During the experiment, especially in the later part, shelled corn was substituted for the ground corn and fed to them on the board platform so that no grain was lost by the substitution. This change seemed good for them as they would clean up their feed better and seemed to enjoy eating much better indeed. The amount of shelled corn that was subsituted never amounted to more than two pounds per head per day.

TABLE I

DIGESTIBLE NUTRIENTS PER POUND OF FEED

Feed	Wat.	Dry M.	Pro.	Cor.	E. E.
Corn Meal	.13	.87	.07	.66	.03
Red Dog Flour	.12	.88	.14	.66	.02
Tankage	.07	.93	.50		.12
Bran	.12	.88	.12	.39	.02

In Table I is given the chemical constituents of the feeds as furnished by the station, used in the experiment and by which all the digestable nutrients that the pigs ate were calculated. These constituents, water, dry matter, protien, carbohydrates and ether extract vary in each feed quite a little. The corn was high in its carbohydrate content and low in its protein and ether extract. It was calculated as 66 per cent digestible carbohydrate of the amount feed to the pigs. The Red Dog Flour was calculated as exactly the same, 66 per cent digestible carbohydrate per pound fed to the pigs. It was also low in protein but contained 14 per cent digestable protein while the corn contained only 7 per cent digestible protein. The digestible ether extract was very low in each, being 3 per cent in corn and 2 per cent of Red Dog Flour. In tankage 50 per cent of its weight is digestible protein and 12

per cent of the weight is digestible ether extract while no digestable corbohydrate exists as part of the food value. The Bran contains a medium amount of protein; 12 per cent of its weight was used as the amount and 39 per cent of digestible carbohydrate with a 2 per cent factor of digestible ether extract. This table constructed out for each pound of feed up to ten pounds made a handy chart in calculating feeding rations, as the corn and Red Dog flour each contain about 66 per cent or two thirds of carbohydrate. The convenience come in making the ration balance in respect to carbohydrate and then supplying the lacking amount of protein in the ration by adding tankage which was 50 per cent digestable protein. In this way the ether extract did not follow the standards exactly as did the carbohydrate and protein.

Chart I

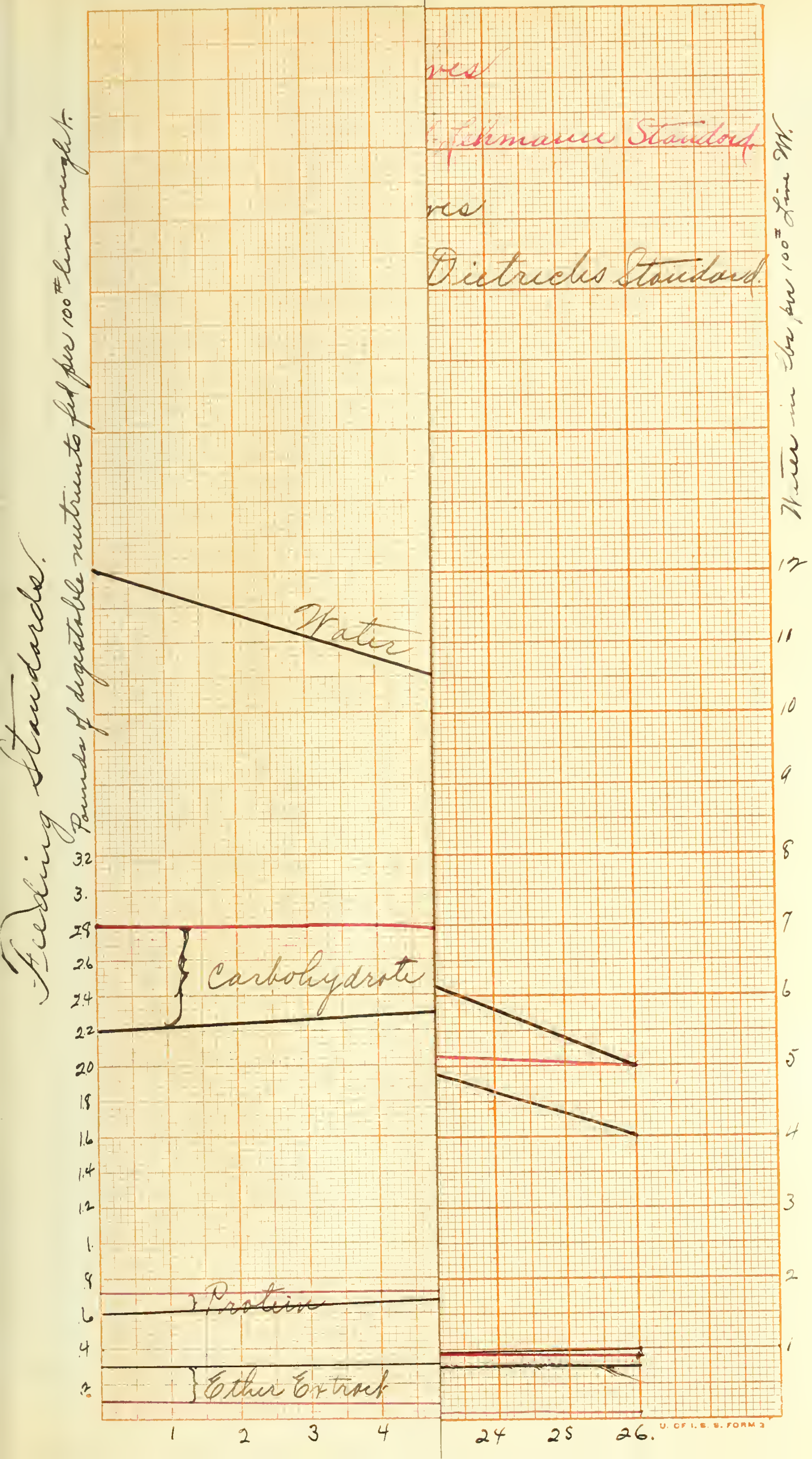
Feeding Standards.
Pounds of digestable nutrients to feed per 100# live weight.
Water in the [illegible] per 100# Live W.
ves
Lehmann Standard
ves
Dietrichs Standard.
Water
Carbohydrate
Protein
Ether Extract
3.2
3.
2.8
2.6
2.4
2.2
2.0
1.8
1.6
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Chart I. Feeding Standards.

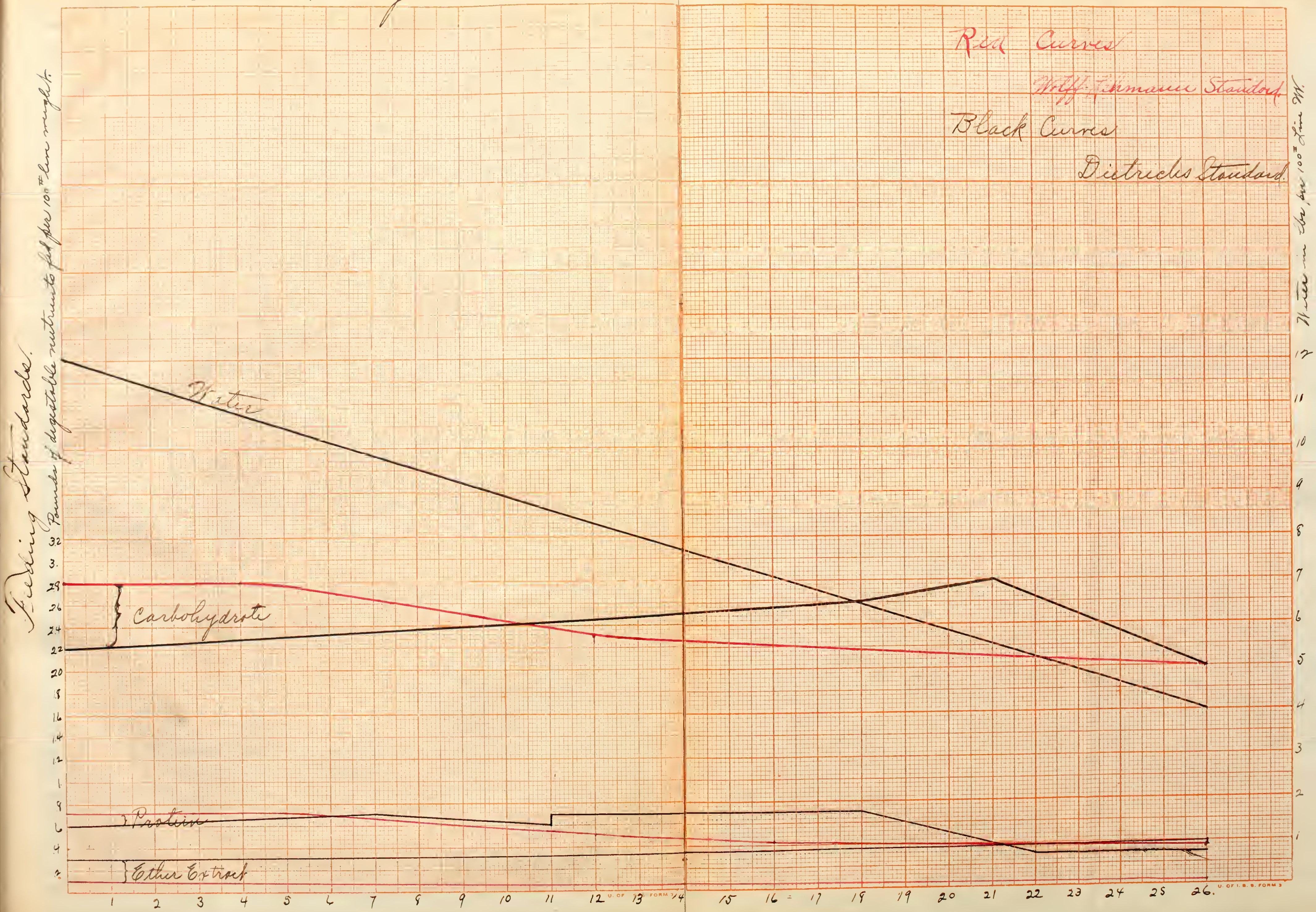


TABLE II - LOT I

Amount of feed fed per week					Digestible Nutrients fed per Wk		
Wk	Corn	R.D.F.	Tank.	Bran	Pro.	Carb.	E.E.
1	30.1	14.8	9.7	2.3	9.451	30.531	2.435
2	30.7	15.4	9.8	3.3	9.591	31.813	2.470
3	36.	15.4	10.8	4.2	10.580	35.562	2.768
4	47.9	15.9	14.1	4.9	13.236	44.058	3.546
5	52.5	17.1	15.6	5.6	14.541	48.120	3.901
6	56.4	19.1	17.3	5.6	16.070	52.608	4.280
7	59.8	20.	17.6	5.8	13.096	55.062	3.612
8	61.9	22.4	15.4	6.6	15.968	58.278	4.298
9	65.	32.7	11.9	8.4	16.078	67.758	4.200
10	72.	35.	13.2	9.2	17.86	74.91	4.664
11	60.5	30.	11.2	8.5	10.105	63.043	2.741
12	70.8	35.3	11.2	9.1	11.64	73.575	3.168
13	80.2	40.5	11.2	10.	13.134	83.562	3.572
14	86.1	43.1	10.7	9.5	18.551	88.977	5.419
15	91.5	46.9	10.5	10.5	17.465	101.445	5.895
16	99.1	49.9	10.6	10.1	20.557	102.696	6.113
17	109.4	55.1	11.8	6.3	22.028	108.057	5.926
18	119.8	62.1	13.5	1.2	25.270	124.8	6.7
19	153.4	39.	16.		24.198	126.984	7.302
20	184.9	35.	18.3		27.	145.2	8.446
21	224.	35.	20.		30.580	170.94	9.82
22	231.	35.	13.9		28.020	175.56	9.298
23	225.	35.	1 .4		21.17	171.60	7.618
24	214.	35.			19.88	164.34	7.120
25	210.	35.			19.6	161.7	7.000
26	210.	35.			19.6	161.7	7.000

TABLE III - LOT II

Amount of feed fed per week					Digestible Nutrients fed per Wk		
Wk	Corn	R. D. F	Tank	Bran	Pro.	Carb.	E.E.
1	28.7	14.2	6.8	2.9	6.745	29.445	2.019
2	31.8	15.4	7.9	3.7	8.776	32.595	2.284
3	34.4	15.4	9.3	4.2	9.718	34.506	2.540
4	38.6	16.1	10.9	4.4	10.934	37.818	2.876
5	44.4	17.5	12.1	5.6	12.280	43.038	3.246
6	47.6	19.7	13.	5.6	12.880	46.702	3.591
7	52.3	21.	14.	6.2	14.345	50.796	3.793
8	57.8	21.9	14.5	6.7	15.026	54.555	4.026
9	66.1	27.	16.	8.2	17.391	64.644	4.607
10	76.8	32.	17.6	8.9	19.724	75.279	5.234
11	87.9	36.1	19.4	9.4	21.028	85.506	5.876
12	94.7	47.9	21.2	11.3	25.305	98.589	6.571
13	103.9	56.1	23.2	12.3	28.210	110.463	7.272
14	115.3	57.9	25.1	12.2	30.205	119.176	8.766
15	123.2	62.5	27.7	10.8	32.52	126.774	8.486
16	140.1	66.	34.1	9.9	37.285	139.887	9.813
17	152.3	73.7	34.6	6.2	39.000	151.500	10.315
18	161.5	80.5	35.3	3.4	40.630	161.046	10.759
19	211.6	48.	34.9		39.044	171.375	11.510
20	254.2	42.	26.9		37.124	175.500	11.694
21	307.5	42.	16.8		35.805	230.67	12.081
22	307.	42	5.5		30.120	230.340	10.710
23	3.2	42	.1		27.07	227.04	9.912
24	302	42			27.020	227.04	9.90
25	302	42			27.020	227.04	9.90
26	331.	42			29.052	246.18	10.77

CHART I TABLES II AND III

In Chart I is indicated the pounds of digestible nutrients that each of the two standards call for. The red lines indicate the Wolf Lehman standard and the nutrients fed to Lot I while the black lines indicate the feeding standard in the Illinois Agricultural Experiment Station circular number 126. The amount of water to be fed is not indicated for Lot I as the Wolff Lehman Standard calls for free access to water. The figures on the right of the chart indicate the amount of water fed in Lot II it begins at 12 pounds per hundred pounds live weight daily and closes the 26 weeks test at 4 poundd per hundred pound live weight not including the water contained in the feed. The figures at the left of the chart indicate the amounts of digestible nutrients fed per hundred pounds live weight.

The protein curve for Lot I begins at a little above .7 pound per 100 pounds live weight and goes steadily down to about .37 pound protein per 100 pounds live weight. The protein curve for lot II varies markedly from that of Lot I. It starts at .6 pound per 100 pounds live weight and runs directly to .7 pound per hundred pounds live weight, at the end of the seventh week. Here it breaks and runs down to .6 pound again in the following 4 weeks. At the beginning of the 12th week it breaks abruptly and starts from .7 pound and holds the line straight through the 18th week. In the next four it drops directly to .3 pound and holds this figure for the last 4 weeks of the experiment.

In both cases the Ether Extract holds a steady curve.

The Wolff Lehman Curve begins at .1 pound and runs directly down to .05 pound per 100 pounds live weight daily while the other standard begins at .3 and goes up at the close to .4 pound per 100 pounds live weight daily.

In the experiment it was found that the pigs of Lot I could hardly eat the amount of food the Wolff Lehmann standard called for during the first 10 weeks. They refused to clean the trough any number of times and the feed had to be weighed back. If the chart is observed it is seen that the carbohydrate curve calls for a large amount of that nutrient and also that the protein curve is much higher in Lot I than for Lot II. The pigs of Lot II always cleaned up their feed nicely and so procede along evenly while the pigs of Lot I were scauring considerably during the first month. They ate but little more feed as can be seen in Table II and III the first 10 weeks during which time they were supposed to eat a great deal more. The pigs of Lot I ate much more at times than did those of Lot II but the high factor of protein, the gorging themselves at times and the varying amounts of water that Lot I drank on different days laid a poor foundation for a generally thrifty lot of hogs.

In tables II and III are shown the chemical nutrients that were computed from the standards on Chart I and the number of pounds of corn, Red Dog flour, Tankage and Bran that were used in making up the rations for the week. Those indicated in table III were fed to Lot I, and those in Table III were fed to Lot II.

It is noticeable that up to the ninteenth week corn meal (whole corn ground) and Red Dog flour were fed in about the ratio

of 2 to 1 but after the 19th, week 1 pound of Red Dog flour per pig per day was put into the ration and the balance was cornmeal. This same thing was followed in both lots and each lot of pigs had the Tankage gradually raised in amount up to the 21st, week in Lot I and to the 18th, week in Lot II and then dwindle away to zero in the 25th, week in each case.

The bran was added to the ration as figured from Chart I in proportion of .3 pound per 100 pounds live weight. This supplement of bran was added steadily to the rations through the 15th, week for Lot I and through the 13th, week for Lot II, then it diminished gradually finishing in the 18th, week in both lots. The bran was fed principally for the bulkiness it gave the feed and for the Laxative properties that it contains. The chemical constituents, however, are ccunted in the colums of the digestible nutrients in these tables.

In these tables the relation of Protein to Chorbohydrate and Ether extract (number of pounds of Ether extract because of the energy force) is narrow at first and gradually becomes wider with the age of the animal. In youth the prctein feed should be greater as there is more muscle to be built then than later but this exact amount of protein cannot as yet be said with safety to rest at any given point. The theories backed by certain evidences and advanced at our present day seem to show the protein factor to be entirely to high in this Wolff Lehman Standard. In such large amounts the protein cannot be metatolized without setting up such large factors of waste that the process of feeding becomes to expensive.

In table two we have a narrower ratio of the Protein to Carbohydrate to begin the experiment with than we do in Table III to begin with. Both tables end with about the same proportions.

TABLE IV

	LOT I		LOT II	
Wk	# per Wk	# per day	# per Wk	# per day
1	30.9	4.4	28.5	4.1
2	29.	4.1	29.4	4.2
3	30.8	4.44	29.9	4.2
4	37.6	5.39	28.2	4.0
5	34.5	4.92	29.2	4.2
6	35.1	5.14	30.4	4.3
7	33.2	4.74	30.3	4.3
8	30.8	4.33	29.2	4.2
9	29.8	4.28	29.4	4.2
10	30.9	4.41	31.1	4.4
11	27.2	3.89	31.5	4.5
12	27.9	4.	32.4	4.6
13	28.3	40.4	32.3	4.6
14	27.9	4.	32.1	4.6
15	27.1	3.87	30.7	4.3
16	26.7	3.8	31.6	4.5
17	26.8	3.8	31.7	4.5
18	26.9	3.9	31.8	4.5
19	28.8	4.1	30.	4.3
20	28.1	4.0	30.5	4.3
21	30.7	4.4	32.	4.6
22	28.8	4.1	29.1	4.1
23	25.9	3.7	26.9	3.8
24	23.2	3.2	25.1	3.6
25	21.5	3.1	23.5	3.3
26	20.6	2.9	23.9	3.4

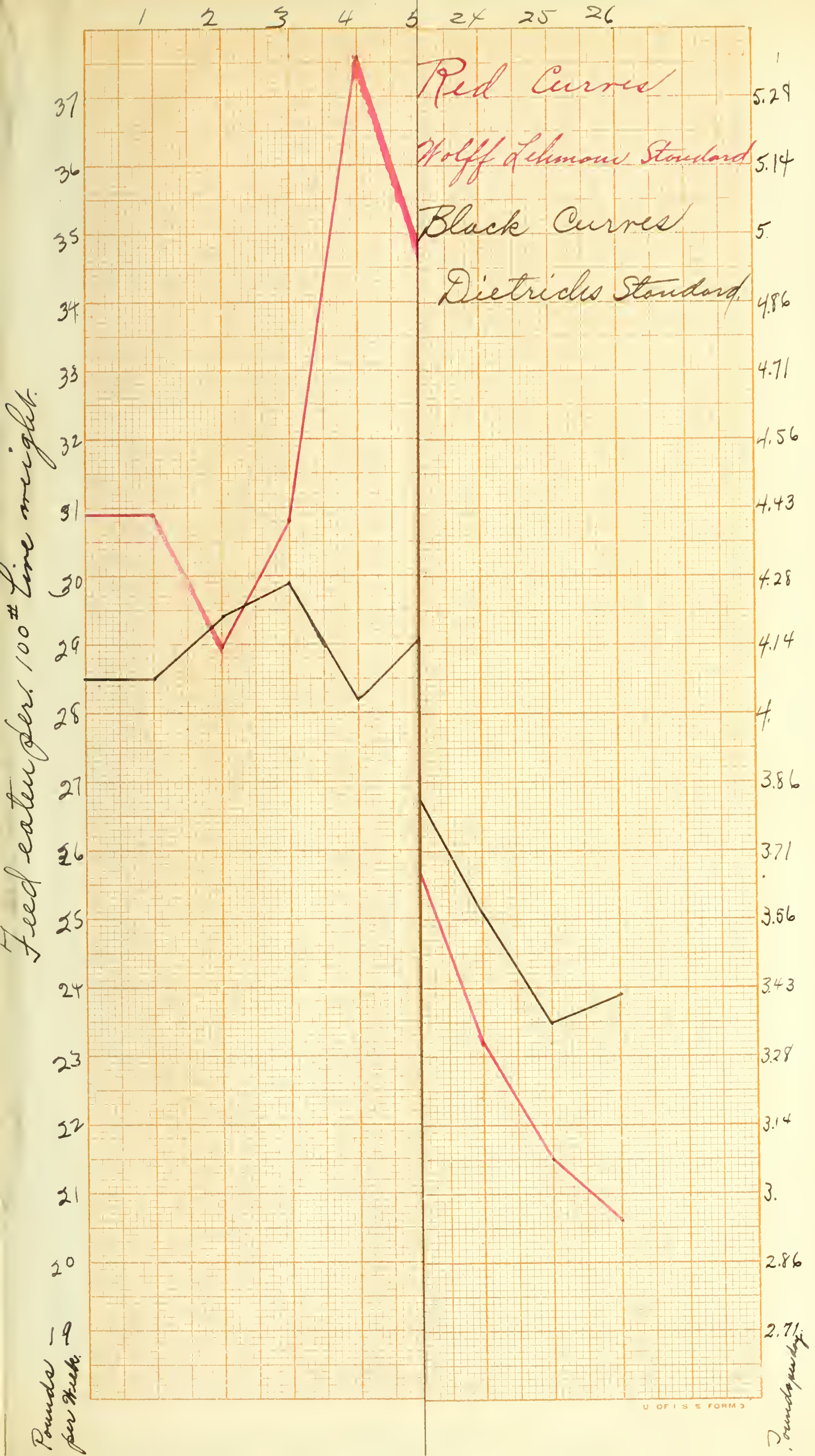
FEED EATEN PER 100 POUNDS LIVE WEIGHT DAILY

In table IV and Chart II the number of pounds of feed is given per 100 pounds live weight daily and weekly. On the right side of the chart are found the number of pounds of feed per day eaten by the pigs per 100 pounds live weight and on the left are the number of pounds eaten per week. This is done by summing the amounts of feed eaten during the week and taking the arithmetical average by dividing by the seven days and further dividing by the weight of the pigs found at the end of the week. In this chart is plainly seen the difference in the amount of feed eaten per day between Lot I in the red curve and Lot II in the black curve. Lot I for the first 10 weeks ate much more per 100 pounds live weight and erffering back to Tables II and III is plainly seen that Lot I was eating much more protein in the ration than was Lot II. This great bulk of feed as is shown here in this chart for the first 10 weeks combined with the high protein factor probably was the cause of the pigs not coming along as well as those in Lot II. After the tenth week Lot II ate more feed than Lot I and referring to Chart VII we see that they continue to make more gains and to average more in weight than does Lot I.

A wider range of the number of pounds of feed eaten per hundred pounds live weight is seen in the curve or Lot I than the curves of Lot II indicates. The curve in the fourth week touches the high point of 5.37 pounds of feed per day per 100 pounds live weight and at the end of the 26 week they eat 2.9 pounds of feed per 100 pounds live weight daily.

In Table IV and Chart II we observe the high point in

Lot II to come in the 12th week when they ate 4.6 pounds of feed per 100 pounds live weight daily and at the close of the 26th week were eating 3.4 pounds per 100 pounds live weight daily. The great difference in the two curves from the 10th to the 21st week is plain enough to show the hearty appetites of Lot II and the lesser power of Lot I to eat a goodly amount and make use of it. This is the one desirable thing in pig feeding to have them eat as much as possible and make good use of their feed. From this Chart (II) and Table IV the conclusion must be drawn that previous feeding has much to do with the future of the hog in the fatening pen or in the breeding herd.


1
2
3
4
5
24
25
26
Red Curves
Wolff Lehmann Standard
Black Curves
Dietrichs Standard
Feed eaten per 100# live weight.
37
36
35
34
33
32
31
30
29
28
27
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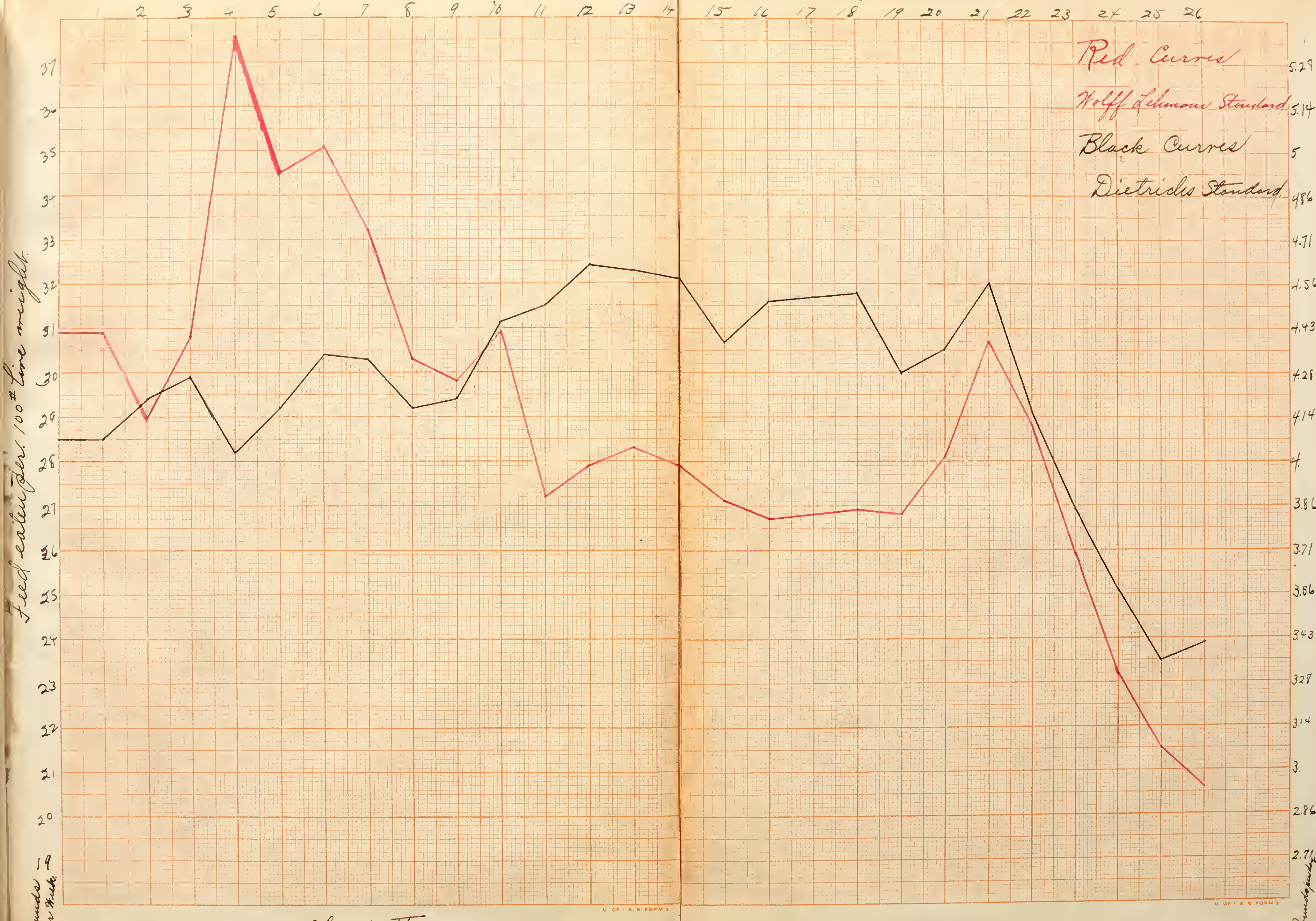
22
21
20
19
Pounds per Week.
1
5.29
5.14
5.
4.86
4.71
4.56
4.43
4.28
4.14
4.
3.86
3.71
3.56
3.43
3.28
3.14
3.
2.86
2.71
Pounds per day
U OF I S S FORM 3


1
2
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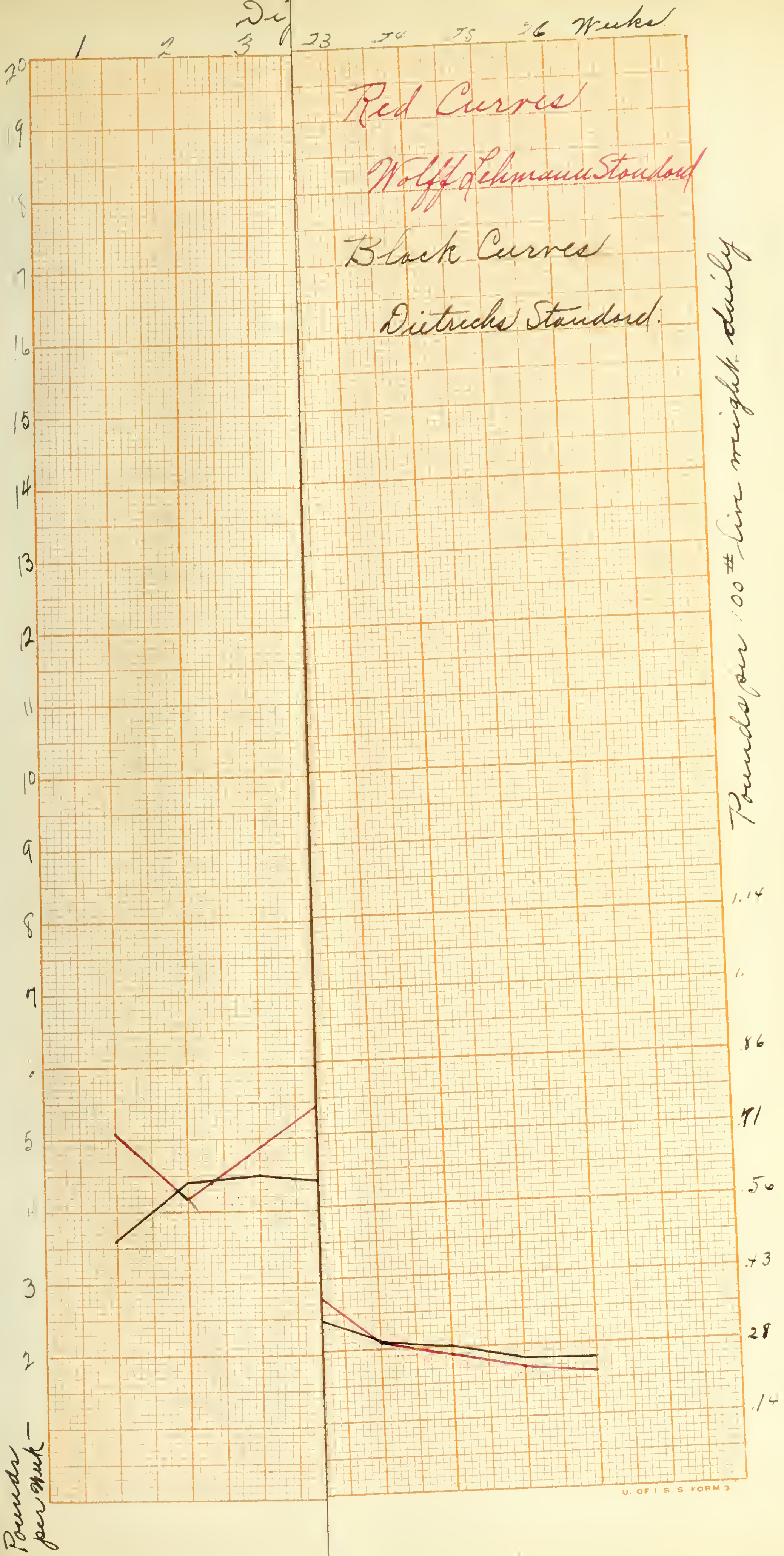
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
Red Curves
Wolff Lehmann Standard
Black Curves
Dietrichs Standard
Feed eaten per 100# live weight.
37
36
35
34
33
32
31
30
29
28
27
26
25
24
23
22
21
20
19
Pounds per Week.
5.29
5.14
5
4.86
4.71
4.56
4.43
4.28
4.14
4.
3.86
3.71
3.56
3.43
3.28
3.14
3.
2.86
2.71
Pounds per day
U OF I S. B. FORM 3
U OF I S. B. FORM 3

Chart II


Di
1
2
3
23
24
25
26 Weeks
Red Curves
Wolff Lehmann Standard
Black Curves
Dietrichs Standard.
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
Pounds per Week –
Pounds per 100 # live weight daily
1.14
1.
.86
.71
.56
.43
.28
.14
U. OF I. S. S. FORM 3

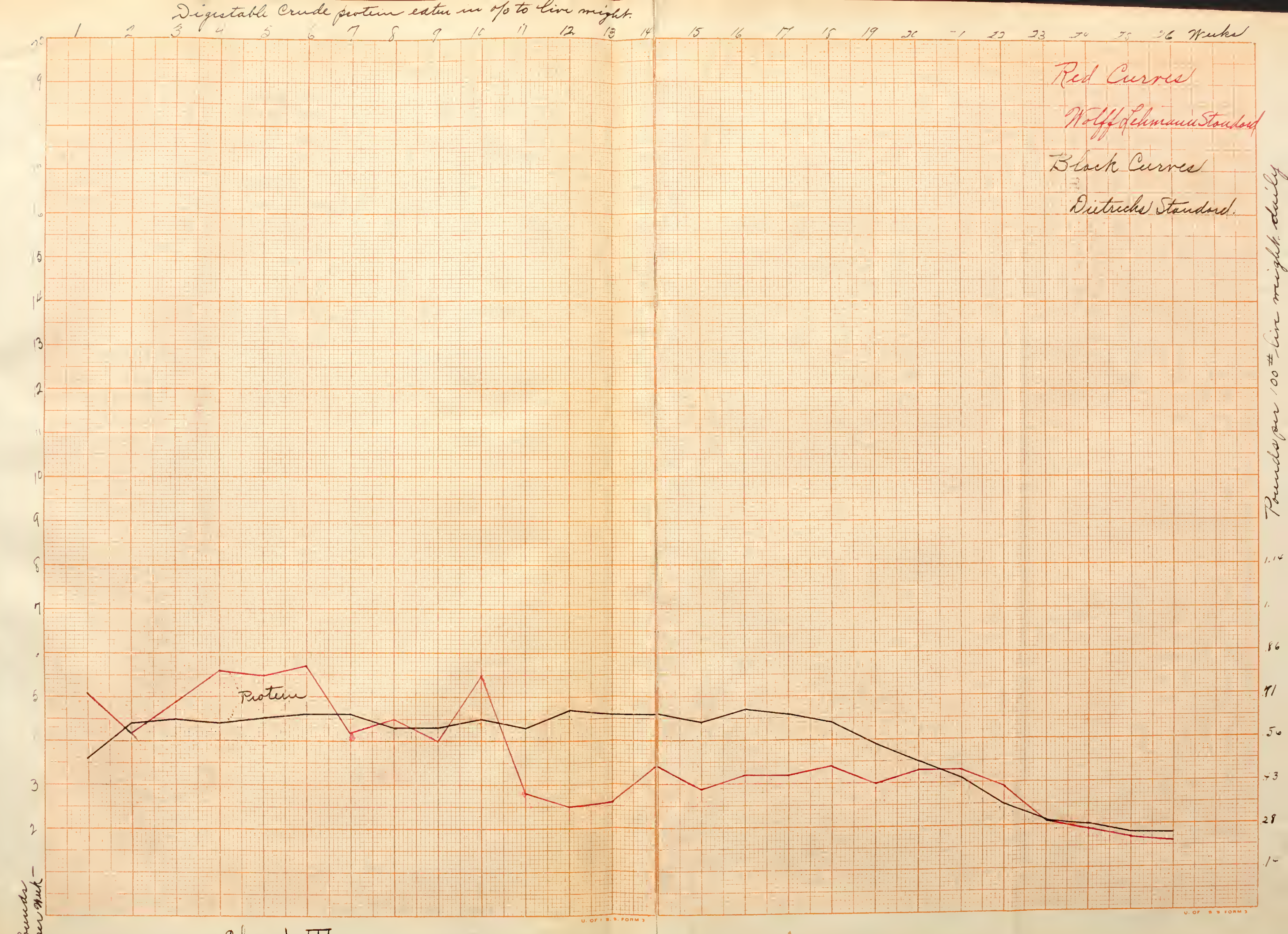

Digestable Crude protein eaten in o/o to live weight.
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
Weeks
Red Curves
Wolff Lehmann Standard
Black Curves
Dietrichs Standard.
Protein
Digs. " p. " eaten in o/o. to live weight.
Pounds per week
9
16
15
14
13
12
11
10
9
8
7
5
3
2
Pounds per 100 # live weight daily
1.14
1.
.86
.71
.56
.43
.28
U. OF I. S. S. FORM 3
U. OF I. S. S. FORM 3

Chart III

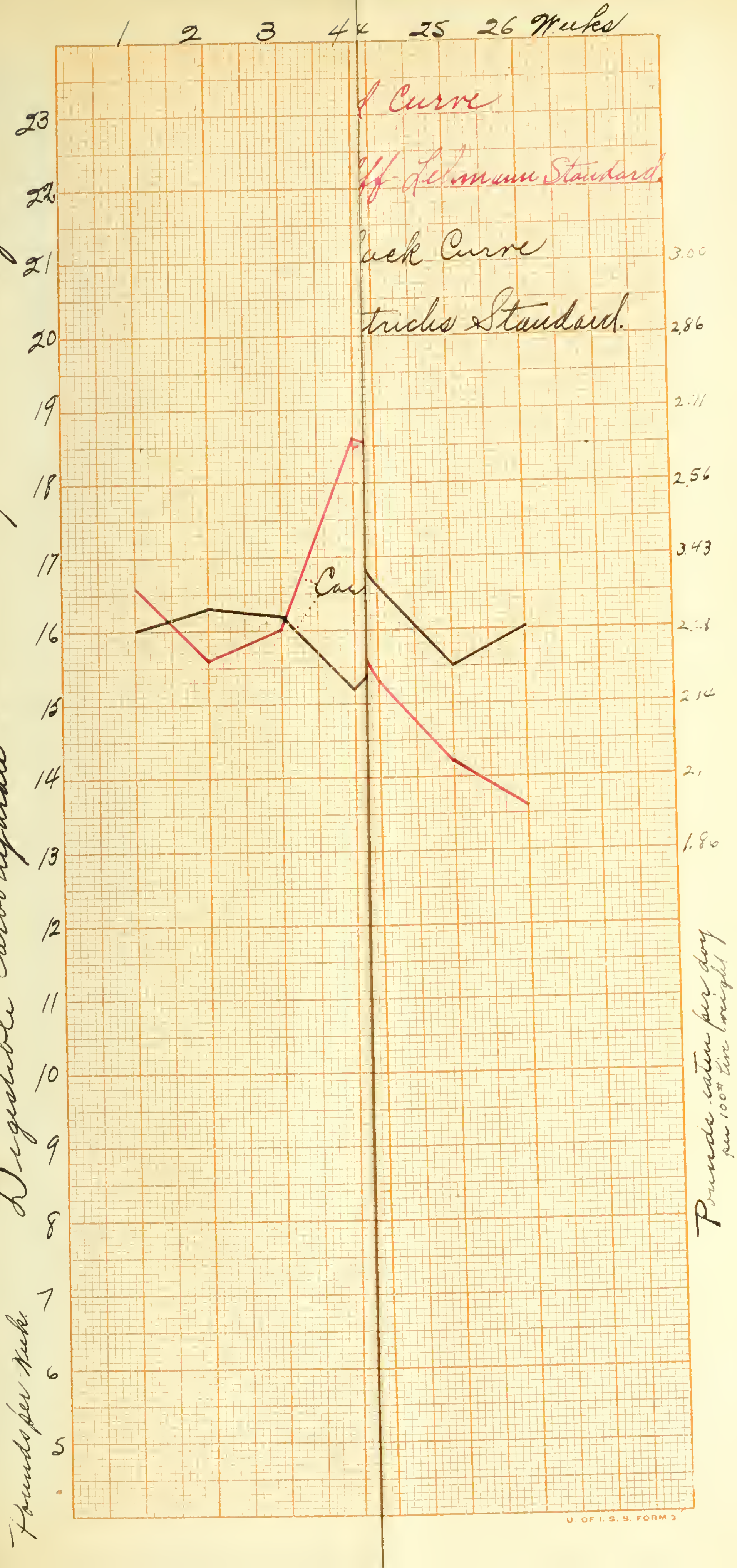
DIGESTIBLE CRUDE PROTEIN EATEN PER 100 POUNDS LIVE WEIGHT PER WEEK AND PER DAY

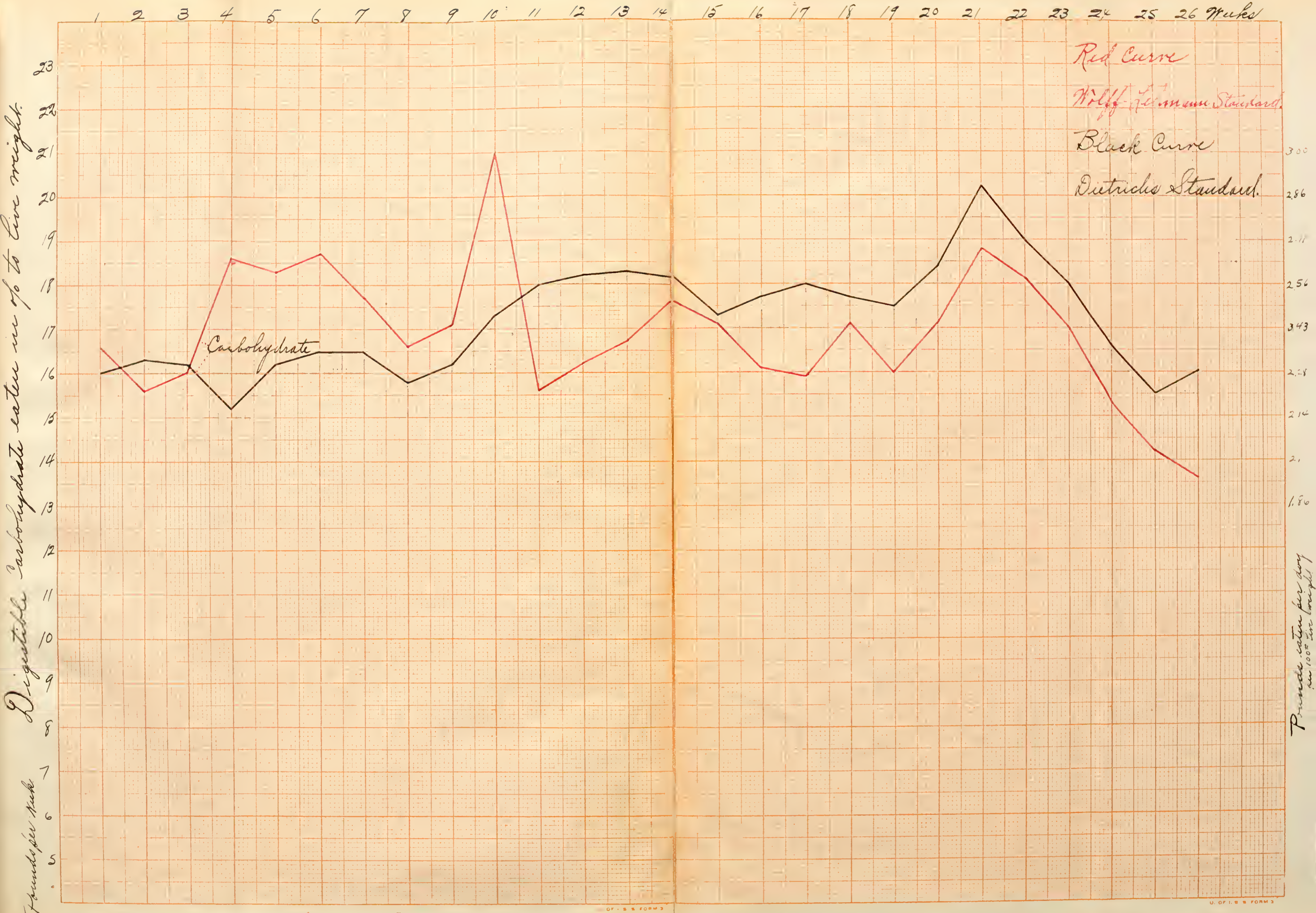
Chart III constructed from Table V and VI shows the amount of digestible crude protein eaten by the hogs per 100 pounds live weight per week and per day, for the 26 weeks of the experiment. In comparing the amounts of protein it is easily observed that the curve as shown in Chart III of the protein eaten, that Lot I starts at a higher point than does Lot II and though varying some is kept continually high for the first 10 weeks while the curve for Lot II is steady and reaches its highest point at the end of the 16th week. By this method of increasing the protein starting from a point as low as .6 per 100 pounds live weight per day and kept slowly and steadily increasing through the first 16 weeks of the experiment to .7 pound per 100 pounds live weight as does Lot II, the factor of waste in protein metabolism does not tend to establish itself so rapidly and the digestive tact is accostomed to handle this steady supply to best advantage. In Lot I the curve starts at a high point but as these pigs were unsteady in the amount of food they ate in the beginning, the curve drops and rises to a high point during the 16 weeks and again at the 10th week then goes low and remains low during the remaining part of the Experiment. This is caused by the standard not being adjusted as best it might be for the hog under feeding conditions as he was fed in experiment.

As has been mentioned before, the pigs of this lot

scoured more in the beginning of the test than did the pigs of Lot II. The ration for Lot I was higher in protein, and their ration was heavier. Doubtless, they occasionally ate too much food and drank too little water and possibly drank too much water at times, and were not able to eat their food so that these things made their habits irregular and doubtless discordered their digestive apparatus. The protein factor of waste undoubtedly became high and under these conditions how was it possible for them to come along steady and make the best use of their feed.

During the 10th week ofthe experiment when the protein curve rose so high, .8 pound per 100 pounds live weight daily, one pig in this lot died but the high factor of protein cannot be charged with killing him though indirectly it may have been. He ate as hearty as any of the pigs up to two days before he died, but the peculiar odor that the pigs always gave off when the amount of tankage in the feed was in abundance was noticed and soon this one pig refused to eat. The severe freezing weather was to much for him in this condition so on the second morning after he refused to eat heartily he was dead in the cot.


1
2
3
4
4
25
26 Weeks
d Curve
ff-Lehmann Standard.
ack Curve
tricks Standard.
Car
23
22
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
Digestible Carbohydrate eaten in % to live weight.
Pounds per week
3.00
2.86
2.71
2.56
3.43
2.28
2.14
2.
1.86
Pounds eaten per day per 100# live weight.
U. OF I. S. S. FORM 3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16
17
18
19
20
21
22
23
24
25
26 Weeks
Red Curve
Wolff-Lehmann Standard.
Black Curve
Dietrichs Standard.
Carbohydrate
Digestible carbohydrate eaten in % to live weight.
Pounds per week
23
22
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
300
2.86
2.71
2.56
343
2.28
2.14
2.1
1.86
Pounds eaten per day per 100# live weight

Chart IV

DIGESTIBLE CARBOHYDRATE EATEN IN PER CENT OF LIVE WEIGHT

Chart IV and Tables V and VI show the amount of carbohydrate eaten per week and per day per 100 pounds live weight. In the curve we find Lot I to start higher but in the first week crosses the line below, but soon rises in the beginning of the fourth week and stays above through the 10th week crossing below again in the eleventh and stays below all the remaining weeks. It tends to rise with the curve of Lot II in the 20th and 21st weeks when the feed was increased from the amount called for by the standard to as much as the pigs would clean up mixed in the same proportion as the standard calls for.

As the carbohydrate part of the feed is the bulky part it is noticed that the curve for Lot II is steadier and is confined within narrower limits than is the curve for Lot I. The limits of the curve for Lot I extend from the lowest limit the end of the 26th week at 1.9 pounds of digestible carbohydrate per day to the upper limit 3. pounds per 100 pounds live weight daily at the end of the 10th week. The limits of the curve for Lot II are from the 4th week at 2.2 pounds per 100 pounds live weight and the upper limit being at the end of the 21st week showing 2.9 pounds of digestible carbohydrate per 100 pounds live weight daily. From the general appearnace of the curve Lot II shows the steadier curve and most of the time is above the curve for Lot I especially is this so during the time of greatest growing and gaining period from the 10th week to the close of the experiment.

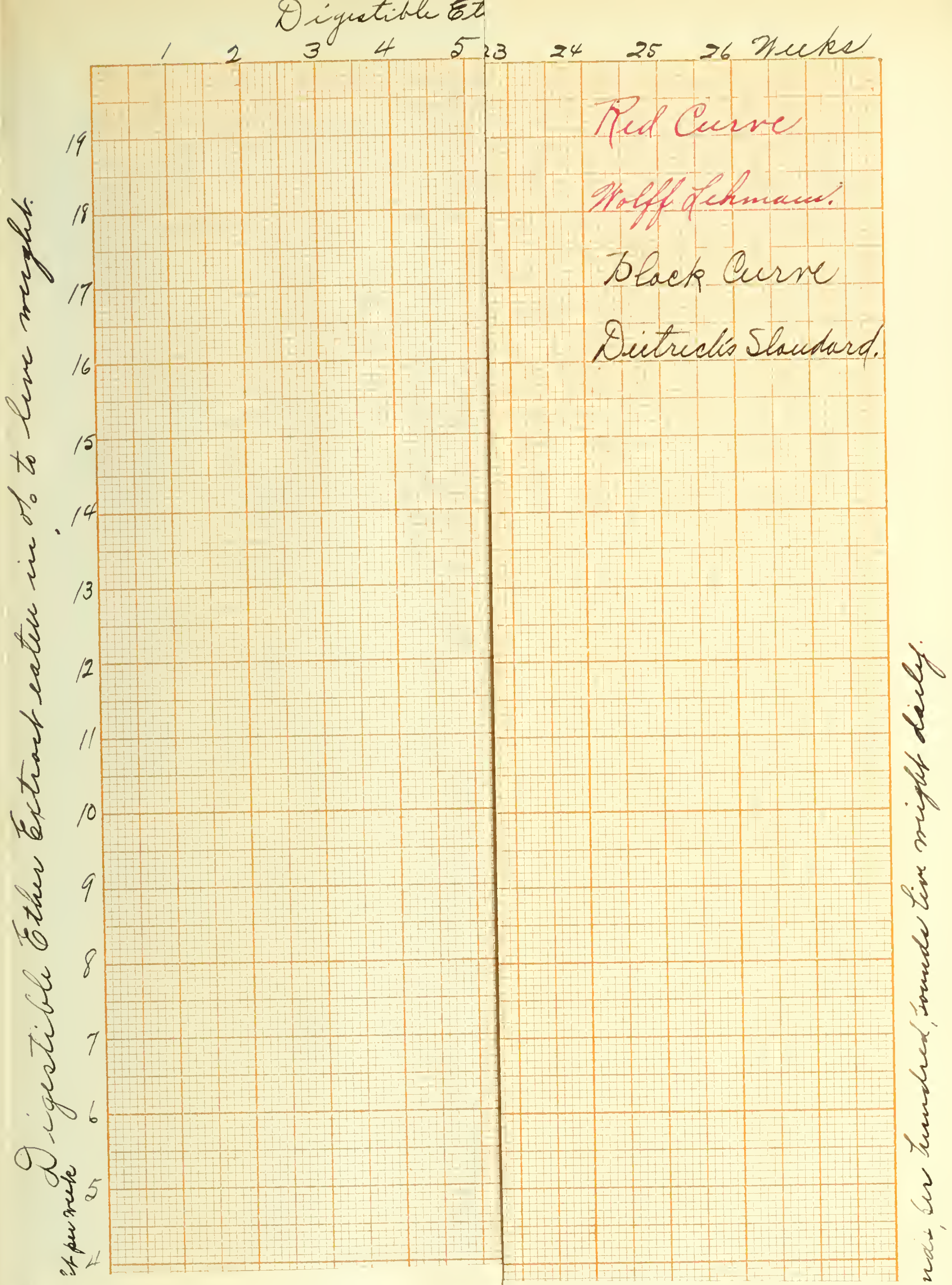
The carbohydrate part of the feed is, of course, the

TABLE V - LOT I

	Amount of feed eaten per week				Amount per day		
Wk	Weights	Protein	Carb.	E. E.	Pro.	Carb.	E.E.
1	184	5.1	16.6	1.3	.7	2.4	.19
2	204	4.2	15.6	1.2	.6	2.2	.18
3	215	4.9	16.	1.2	.7	2.3	.18
4	236	5.6	18.6	1.5	.9	2.7	.21
5	264	5.5	18.3	1.4	.9	2.6	.20
6	280	5.7	18.7	1.5	.9	2.7	.21
7	310	4.2	17.7	1.1	.6	2.5	.16
8	350	4.5	16.6	1.2	.6	2.4	.18
9	395	4.0	17.1	1.	.5	2.4	.14
10	336	5.5	21.0	1.3	.8	3.	.19
11	404	2.8	15.6	0.6	.4	2.2	.09
12	452	2.5	16.2	0.7	.4	2.3	.10
13	500	2.6	16.7	0.7	.4	2.4	.10
14	535	3.4	17.6	1.0	.4	2.5	.14
15	590	2.9	17.1	.7	.4	2.4	.13
16	635	3.2	16.1	.9	.5	2.3	.13
17	680	3.2	15.9	.8	.5	2.3	.12
18	730	3.4	17.1	.9	.5	2.4	.13
19	990	3.0	16.0	.9	.4	2.3	.13
20	846	3.3	17.1	1.0	.5	2.4	.14
21	908	3.3	18.8	1.1	.5	2.7	.15
22	970	2.9	18.1	.9	.4	2.6	.13
23	1008	2.1	17.0	.7	.3	2.4	.10
24	1075	1.9	15.3	.6	.3	2.2	.09
25	1135	1.7	14.2	.6	.2	2.0	.09
26	1188	1.6	13.6	.6	.2	1.9	.09

TABLE VI - LOT II

Amount of feed eaten per week					Amount per day		
Wk	Weights	Protein	Carb.	E.E.	Pro	Carb.	E.E.
1	184	3.6	16.	1.1	.5	2.3	.15
2	200	4.4	16.3	1.1	.6	2.3	.15
3	213	4.5	16.2	1.2	.6	2.3	.17
4	248	4.4	15.2	1.2	.6	2.2	.17
5	272	4.5	16.2	1.2	.6	2.3	.17
6	282	4.6	16.2	1.3	.6	2.3	.18
7	308	4.6	16.5	L.2.	.6	2.4	.17
8	345	4.3	16.5	1.2	.6	2.2	.17
9	398	4.3	16.2	1.2	.6	2.3	.17
10	434	4.5	17.3	1.2	.6	2.4	.17
11	484	4.3	18.	1.2	.6	2.5	.17
12	540	4.7	18.2	1.2	.7	2.6	.17
13	604	4.6	18.3	1.2	.7	2.6	.17
14	655	4.6	18.2	1.3	.7	2.6	.18
15	730	4.4	17.3	1.2	.6	2.4	.17
16	790	4.7	17.7	1.2	.7	2.5	.17
17	840	4.6	18.0	1.2	.6.	2.6	.17
18	910	4.4	17.7	1.2	.6	2.5	.17
19	980	3.9	17.5	1.2	.6	2.5	.17
20	1060	3.5	18.4	1.1	.5	2.6	.15
21	1142	3.1	20.2	1.1	.4	2.9	.15
22	1216	2.5	19.0	.9	.3	2.7	.13
23	1275	2.1	18.0	.8	.3	2.6	.11
24	1370	2.	16.6	.7	.3	2.3	.10
25	1460	1.8	15.5	.7	.2	2.2	.10
26	1560	1.8	16.0	.7	.2	2.3	.10


Digestible Et
1
2
3
4
5
23
24
25
26
Weeks
Red Curve
Wolff Lehmann.
Black Curve
Dietrich's Standard.
Digestible Ether Extract eaten in % to live weight.
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
per week
nai, per hundred, pounds live weight daily.

Digestible Ether Extract eaten in % to live weight.

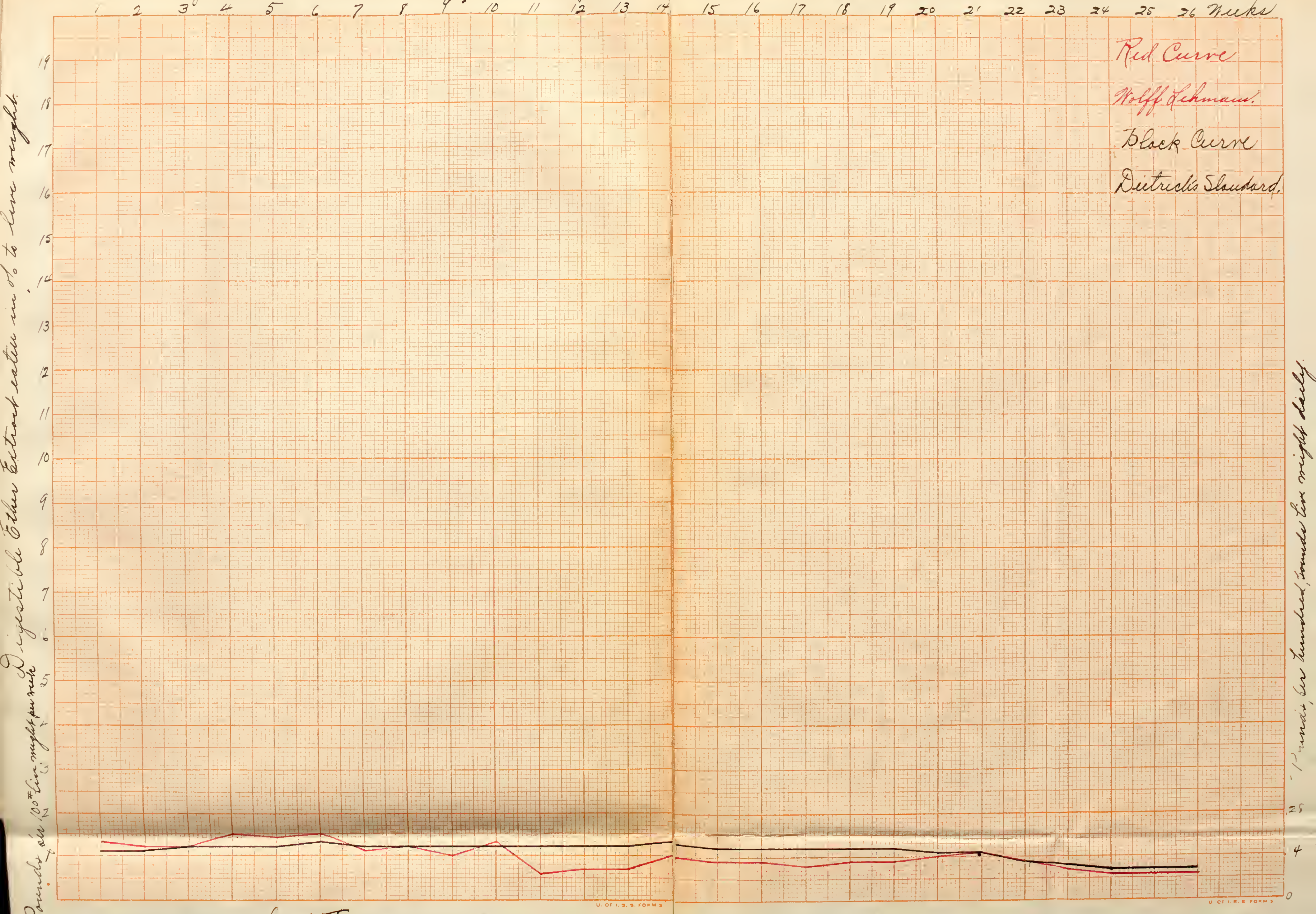


Chart V

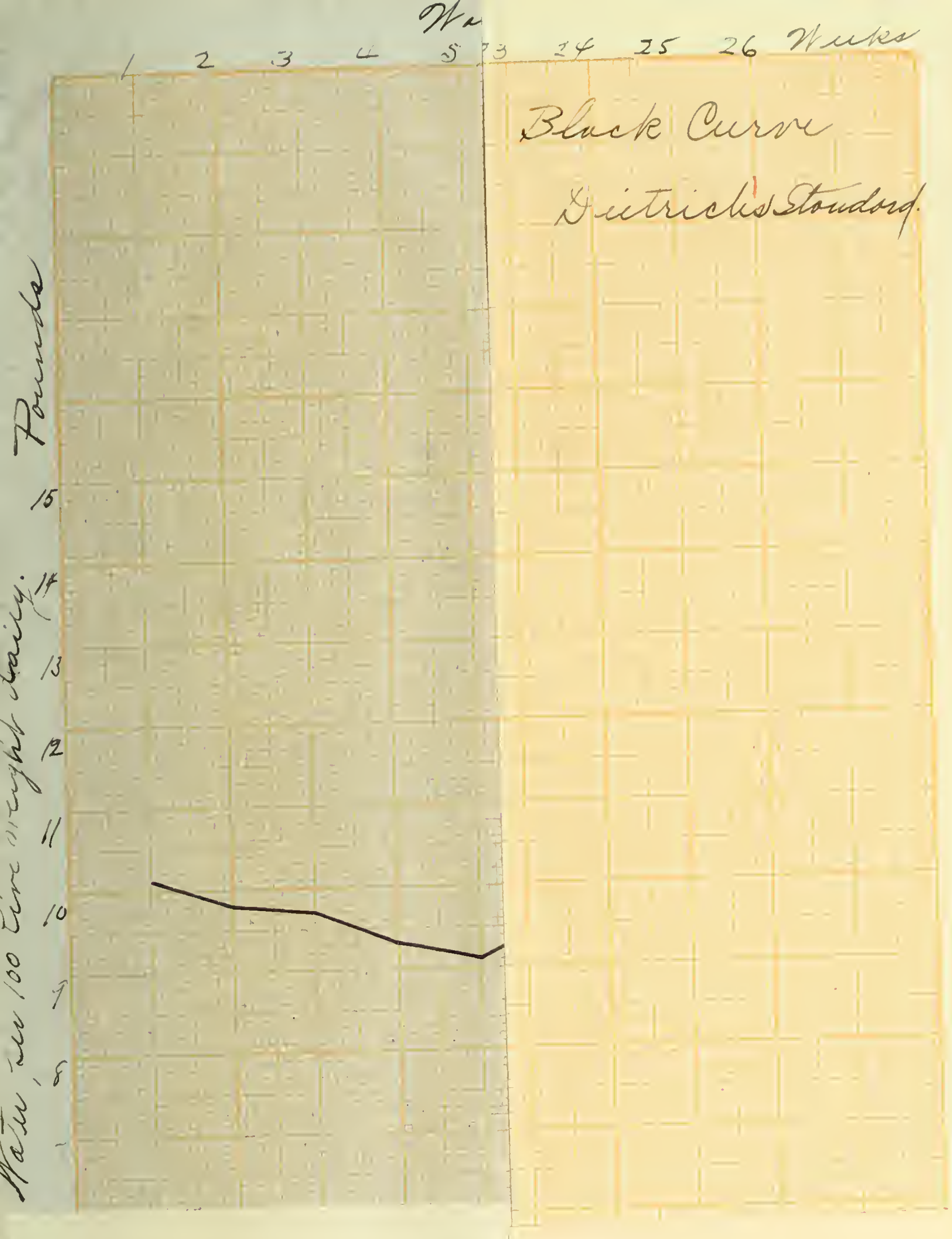
fattening part and from the curves of Chart IV is seen the relative amounts of that nutrient that the two lots ate. Judging just from these curves, the hogs of Lot I could not be imagined to surpass Lot II in being plump and fat. A glance at the photographs of each one further bears out the fact that Lot II were superior to lot I in being fat and in better market condition at the close.

THE DIGESTIBLE ETHER EXTRACT EATEN IN PER CENT TO THE 100 POUNDS LIVE WEIGHT PER WEEK AND PER DAY

The curves on Chart V has probably more value and significance than does the charts on the per cent of Protein and Carbohydrate eaten. It shows the amount of Ether extract eaten during the 26 weeks following as it does without any connection to the Ether Extract in the feeding standards. This fact came about in not being able without extra expense of supplying some substance rich in that nutrient to the ration to balance the ration with the amount called for. It was most generally lower in the rations for Lot II and in the early part of the feeding experiment was higher than the amount called for by the Standard in Lot I.

Lot I in the 3rd and 5th week show higher per cent (.21 of a pound per 100 pounds live weight daily) than does Lot II at any time. This was because of the fact that the tankage has a high content of Ether extract and in this period Lot I has a high per cent of tankage in its feed. It goes to .6 pound in the 11th week rising again until the last 3 weeks of the experiment when it

comes down again to .6 pound per 100 pounds live weight daily. Lot II holds a fairly straight line but lowers gradually from the 19th week when the tankage was cut short from the feed. This curve started at .15 per cent and closed the 26th week at .1 pound per 100 pounds live weight daily. It fluctuated at the end of the 6th week to .18 pound per 100 pounds live weight as it did again in the 14th. It may be as well that the Ether extract was not increased by buying some expensive substances and feeding with the ration for a great supply of knowledge is not yet in shape proving the exact or nearly exact amount of this nutrient to be used in feeding and fatening service.


We
1
2
3
4
5
23
24
25
26 Weeks
Black Curve
Dietrichs Standard
Water 100 time weight daily.
Pounds
15
14
13
12
11
10
9
8

Water per 100# live weight daily.

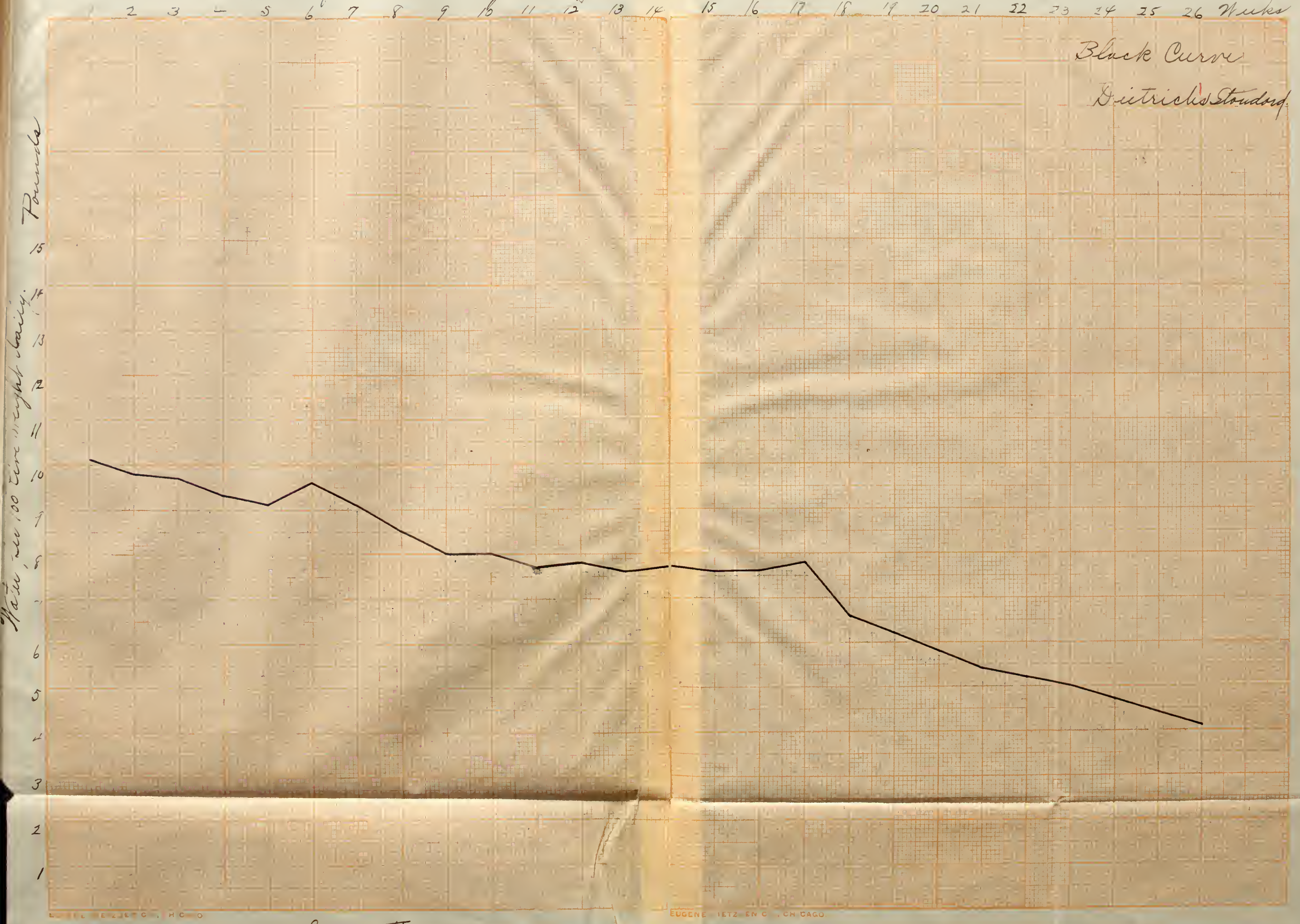


Chart VI

TABLE VII - LOT I

Pounds per week		Pounds per day
1	131.1	10.1
2	137.6	9.8
3	146.2	9.7
4	160.1	9.3
5	175.6	9.1
6	189.5	9.6
7	197.5	9.1
8	205.1	8.5
9	223.3	8.
10	243.1	8.
11	264.3	7.7
12	295.8	7.8
13	325.3	7.6
14	355.1	7.7
15	388.7	7.6
16	415.	7.6
17	423.5	7.6
18	426.	7.8
19	429.5	6.6
20	432.2	6.2
21	437.8	5.8
22	444.5	5.4
23	448.8	5.2
24	448.4	5.
25	450.	4.4
26	455.5	4.1

WATER PER 100 POUNDS LIVE WEIGHT DAILY

In Table VII and Chart VI is the amount of water given to the pigs of Lot II during the experiment not counting the water content of the grain fed to the pigs.

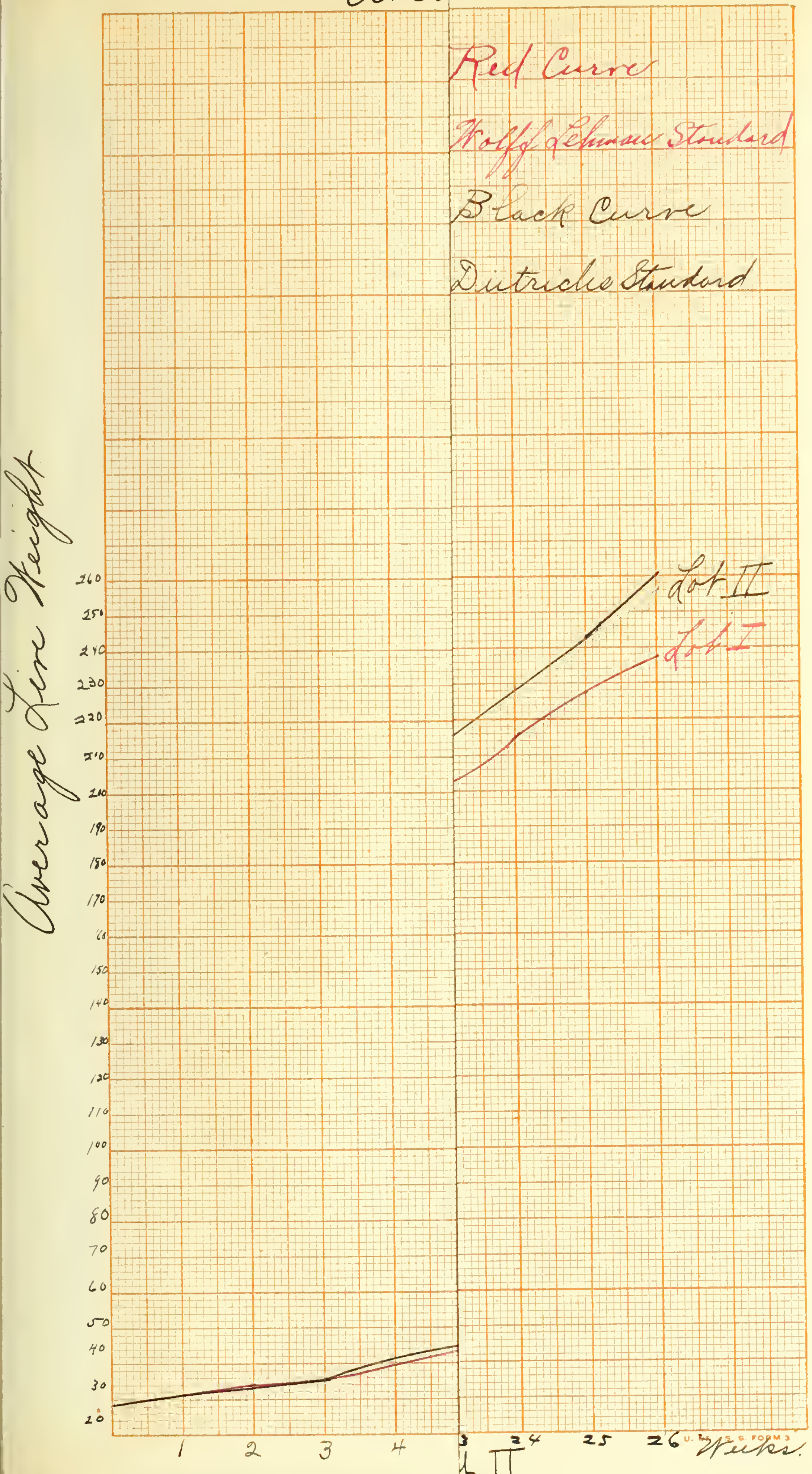
The curve of the chart is highest in the amount of water consumed by the pigs during the first week of the experiment than it was for any other time. The pigs drank with their feed 10.1 pounds of water daily per 100 pounds live weight and gradually decreased in the amount they drank through the whole 26 weeks with the exception of the 6th week when they drank more than they did during the previous 5th week. Referring to Chart I the amount of water that is called for would tend to make the curve for this lot gradually go down as it does. But referring to Table VII in the amount of water fed during the week from the 16th week to the close no very great difference in the amount each pig consumed can be noticed. This fact and the fact that the feed steadily increased per 100 pounds live weight, as shown in Table III per day, shows a gradual widening of the ratio between the amount of water fed and the amount of feed fed per day to each pig.

The weather in November in the very beginning of the test was rainy and in spite of the fact that most all the holes in the lots were kept filled some water stood in them, giving the pigs in both lots access to water. This did not hinder results in Lot I but in Lot II where all the water that was to be fed was to be given with the feed it hindered to some extent. The observation was, that the pigs usually had enough water with their feed to quench their thirst, but on several occasions the pigs were seen

to drink small quantities. To this fact was attributed the cause of the pigs scouring slightly during these rainy days and not at other times. This is the only fault that was noticable with the results of the outsome of Lot II. In Lot I where free access to water was followed throughout the experiment, water standing in puddles made no great difference. This water along with the snow and rain that came all through the winter and fall into the open trough which contained the drinking water for the Lot made accurate results in the amounts of water drank by the pigs in Lot I next to impossible to determine. Their feed was mixed with just water enough to make a thick slop and make the food palatable. The water in the drinking trough (a galvanized iron trough six inches deed by eight inches wide and three feet long) was weighed back on several occasions and some results obtained. But during rainly and snowey weather the water weighed back was more than that placed in the trough. This threw the results in determining the exact amount in complete turmoil so the plan of determining the amount of water that this lot drank was given up. However, the amount of water that Lot I drank was less proportionately per 100 pounds live weight that the water drank by the pigs in Lot II in so far as was able to be determined. The pigs of Lot I were irregular in their drinking habits as it fell to general observation. Pig number 5 of Lot I seemed to form the habit early of eating and going to the drinking trough immediately after and taking a few swallows of water. This one fact alone may be the cause of his fine progress in gaining so rapidly near the close of the experiment. The water drinking of Lot II being regular and habitual may be the cause of

this Lot II excelling in one way Lot I. For the amount of water they drank in the beginning of the test in case of Lot II undoubtedly enlarged their stomachs and intestines and made possible a power to consume larger amounts of feed later on in the experiment and aided them in their digestion all through the 26 weeks of feeding.

Aver


Red Curve
Wolff Lehmann Standard
Black Curve
Dietrichs Standard
Average Live Weight
260
250
240
230
220
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
Lot II
Lot I
1
2
3
4
23
24
25
26
Weeks.
U.S. S.S. FORM 3

t II.

Average Live Weight per Week.

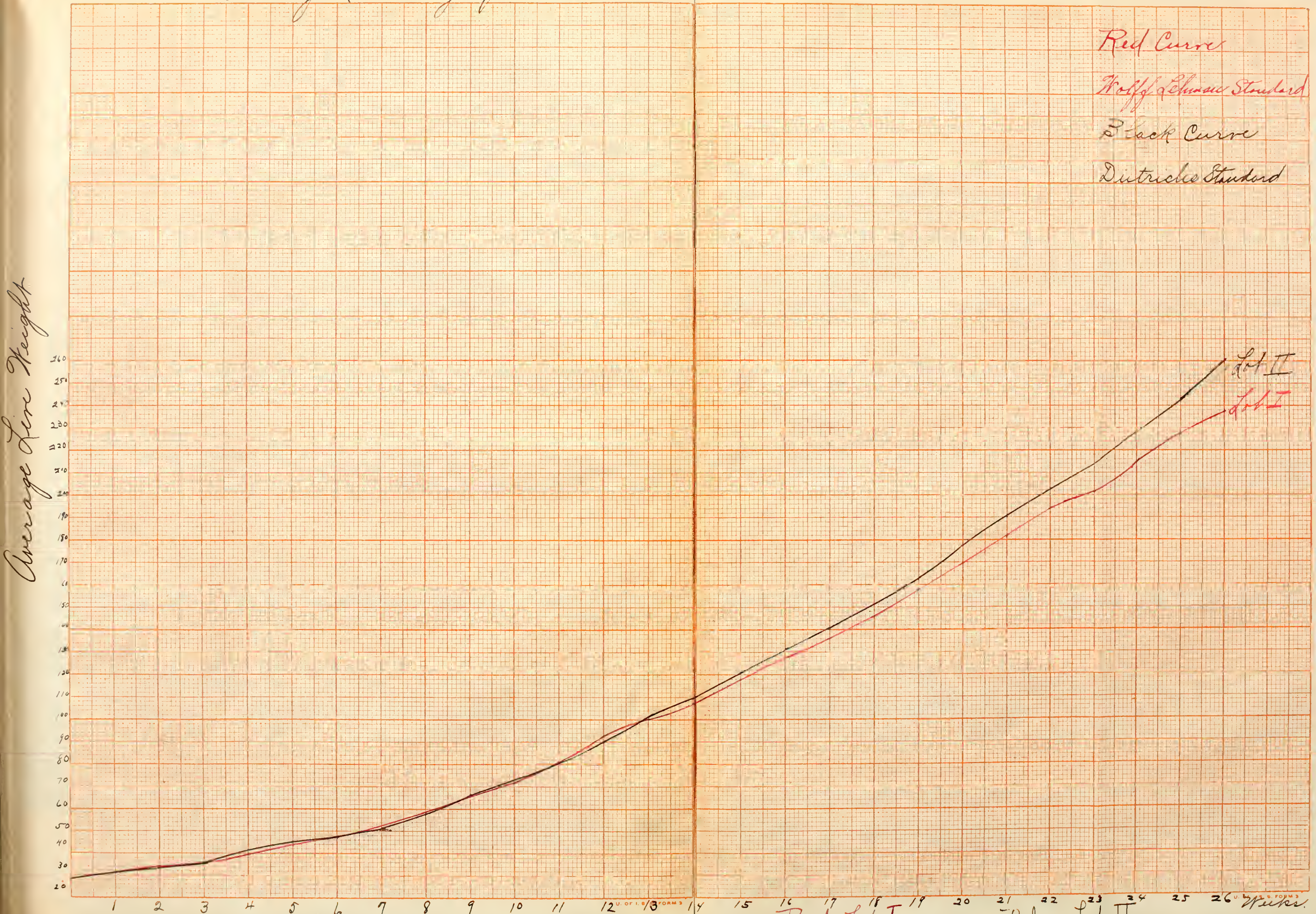


Chart VII

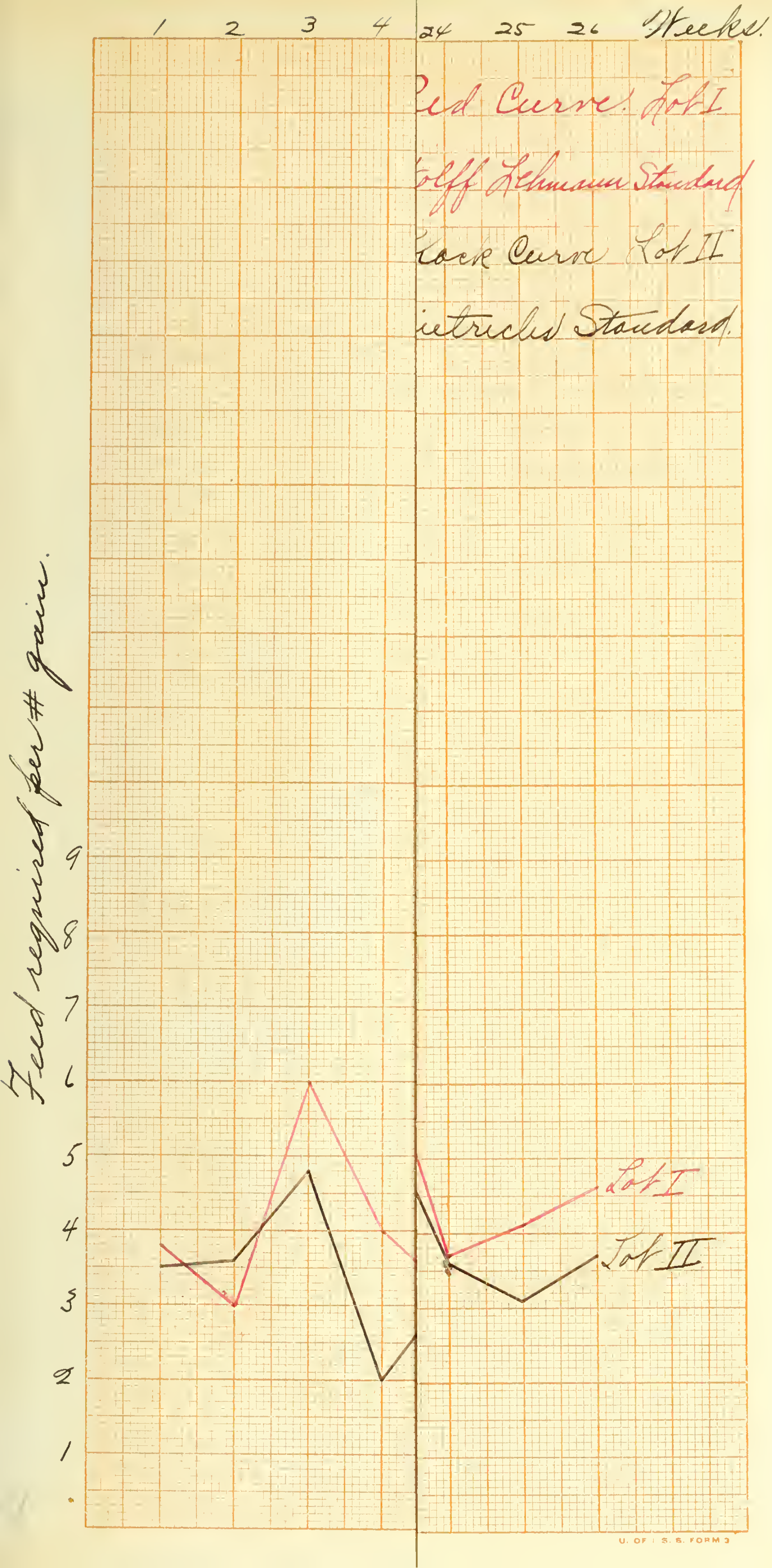
TABLE VIII

Wk	Lot I Wt.	Lot II Wt
0	28.1	28.1
1	30.6	30.6
2	34.	33.5
3	35.8	33.5
4	39.3	41.3
5	44.	45.3
6	46.6	47.
7	51.6	51.3
8	58.3	57.5
9	66.	66.3
10	71.2	72.3
11	80.8	80.6
12	92.6	90.
13	100.	100.6
14	107	109.3
15	118	121.6
16	127.	131.6
17	136.	140.
18	146.	151.6
19	158.	163.3
20	169.2	176.6
21	181.6	190.3
22	194.	202.6
23	201.6	212.5
24	215.	228.3
25	227.	243.3
26	237.6	260.0

AVERAGE LIVE WEIGHT PER WEEK

In observing the Chart VII and Table VIII it is noticed that both lots of pigs averaged 28.1 pounds apiece at the beginning of the experiment. The curve shows some little variation for the first 13 weeks or first half of the experiment and there the curve of Lot II gradually pulls above that of Lot I; Lot II finishing at 260 pounds while the Lot I finishes at 237.5 pounds average.

Remembering that the best hog of either Lot was one finishing at 326 pounds in Lot I, arithmetical average makes the curve show much better in the case of Lot I than is really the truth of the case. And further, there were only 5 hogs to finish in Lot I while in Lot II there were 6 and all were more nearly the same size. Were we to subtract the weight of the largest hog in each case we should find that the average weight of Lot I to be near 215 pounds at the close while the average for Lot II would be near 251 pounds. This is more nearly the way in which the average should be showing what the effect of the two standard would be on a much larger number of hogs.


1
2
3
4
24
25
26
Weeks.
ed Curve: Lot I
olff Lehmann Standard
lock Curve Lot II
ietrichs Standard.
Feed required per # gain.
9
8
7
6
5
4
3
2
1
Lot I
Lot II
U. OF I. S. S. FORM 3

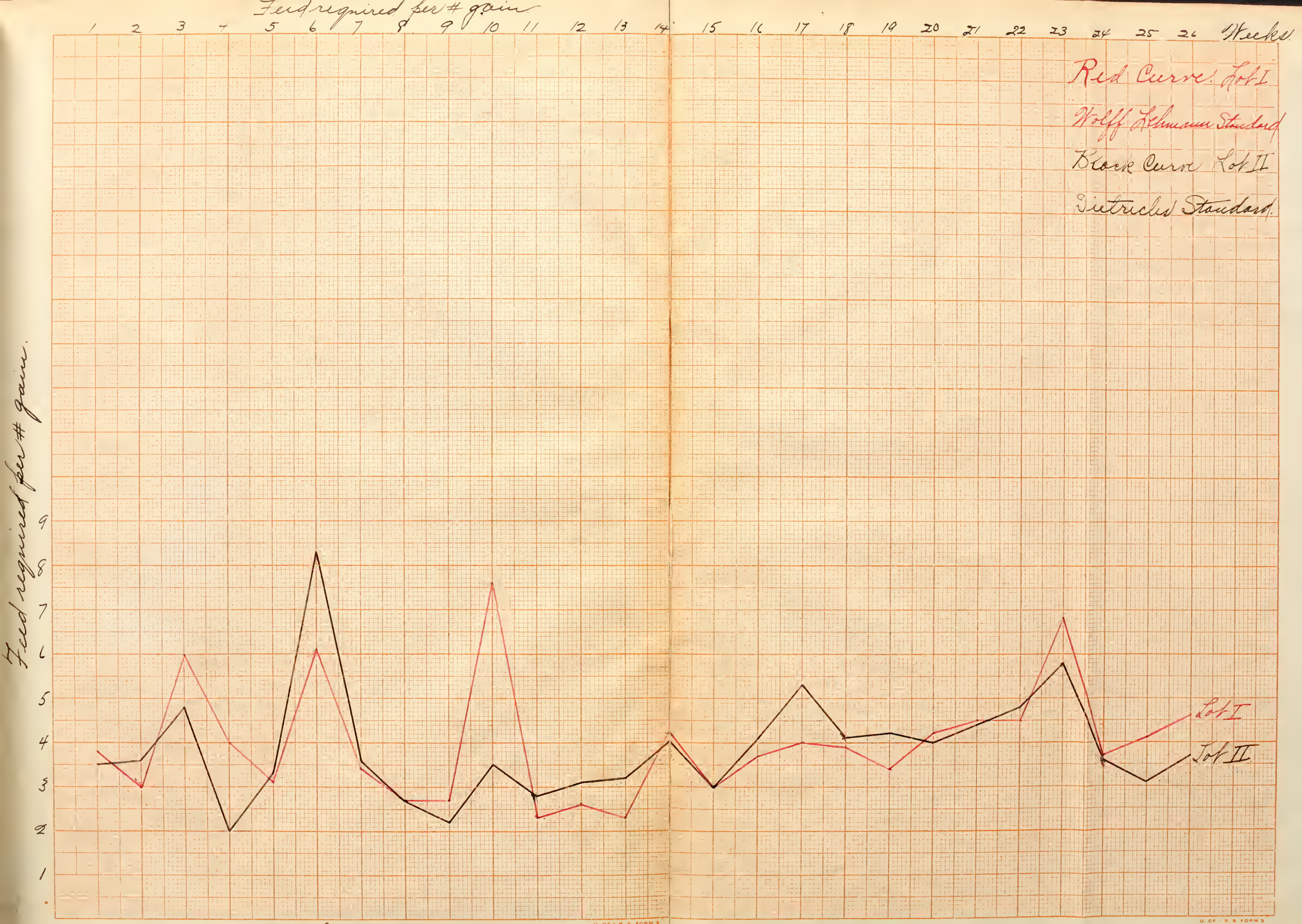

Feed required per # gain
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
Weeks.
Red Curve. Lot I
Wolff Lehmann Standard
Black Curve Lot II
Dietrichs Standard.
Feed required per # gain.
9
8
7
6
5
4
3
2
1
Lot I
Lot II
U. OF I. S. S. FORM 3
U. OF I. S. S. FORM 3

Chart VIII

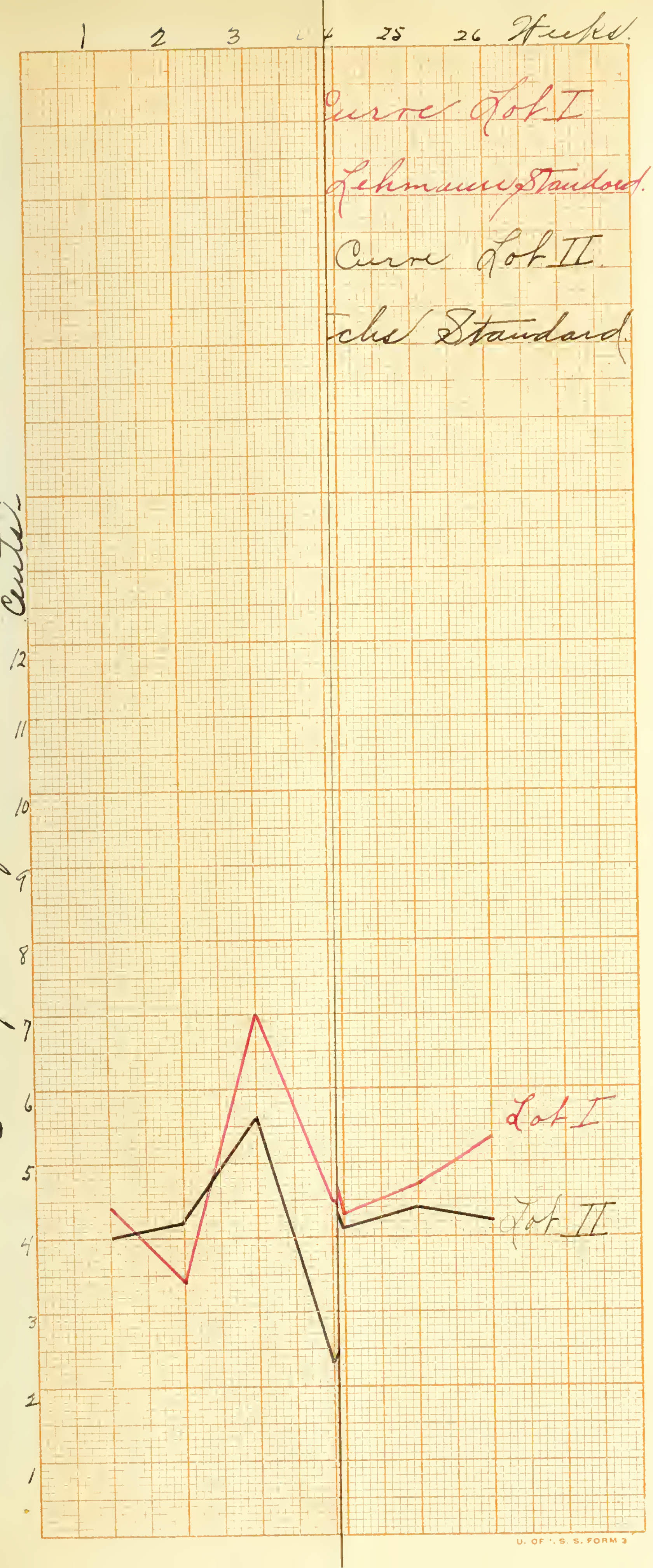
TABLE IX

	LOT I				LOT II			
Wk	feed	gain	fd.per #gain	Cost per #	Total fd	Gain	fd.per # gain	Cost per #
1	56.9	15	3.8	4.4	52.6	15	3.5	4.
2	59.2	20	3.	3.4	58.8	16	3.6	4.2
3	66.4	11	6	7.	63.6	13	4.8	5.6
4	82.9	21	4.	4.5	70.0	35	2.	2.3
5	88.8	28	3.1	3.6	79.6	24	3.3	3.8
6	98.4	16	6.1	7.	83.9	10	8.3	9.6
7	103.2	30	3.4	3.9	93.5	26	3.6	4.1
8	107.3	40	2.7	3.	100.9	37	2.7	3.1
9	118.	45	2.7	3.3	117.3	53	2.2	2.5
10	127.6	17	7.6	8.6	127.3	36	3.5	4.
11	110.2	48	2.3	2.6	143.8	50	2.8	3.3
12	126.4	48	2.6	3.	175.1	56	3.1	3.6
13	114.9	48	2.3	2.7	205.5	64	3.2	3.6
14	149.4	35	4.2	4.9	210.5	51	4.	4.7
15	159.4	35	3.	3.3	224.2	75	3.	3.4
16	167.7	45	3.7	4.3	249.1	60	4.1	4.7
17	182.6	45	4.	4.6	267.8	50	5.3	6.1
18	196.6	50	3.9	4.5	290.7	70	4.1	4.7
19	208.4	60	3.4	3.3	294.6	70	4.2	4.8
20	238.2	56	4.2	5.	326.1	80	4.	4.1
21	279.	62	4.5	5.1	366.3	82	4.4	5.1
22	279.9	62	4.5	5.1	354.5	74	4.8	5.3
23	261.4	38	6.8	7.9	345.	59	3.8	6.7
24	249.	67	3.7	4.3	344.	95	3.6	4.1
25	245.	60	4.1	4.7	344.	90	3.1	4.4
26	245.	53	4.6	5.3	373.	100	3.7	4.2
	4052.	1019	103.5	119.3	5358.	1391	101.3	116.0

FEED REQUIRED PER POUND GAIN

In Chart VIII and Table IX the number of pounds of feed eaten per pound gain is given. The chart shows irregular curve and that in no succeeding weeks do we find the same amount of feed eaten per pound gain with but a single exception, and that is in case of Lot I during the 21st and 22nd weeks of the experiment. Lot II runs the higher of either lot in amount of feed eaten per pound gain and this was at the end of the 6th week. It was true in both lots that they ate a large number of pounds of feed per pound gain in this week. But since weather conditions and unknown reasons influence the amount of gains, very often this low gain in proportion to the amount of feed eaten was willingly atributed. Although this period was cold and snowey and the quarters as comfortable as usual it was very bad weather for live stock and these pigs then three month to three months and onehalf old suffered in consequence. In the Table IX in the column showing the amount of feed eaten per pound gain 7.6 pounds per pound gain in the 10th week was the highest amount of feed eaten, and immediately following this in the eleventh was the lowest amount of feed required per pound gain during the 26 weeks. Lot II in the same week had not nearly the wide difference in the amounts eaten per pound gain.

In summing the pounds of feed eaten per pound of gain an average of 4. pounds is required for Lot I per pound gain while Lot II requires 3.9 pounds per pound of gain. This shows the balance to be in favor of Lot II requiring one tenth pound of feed less for each pound of fat and muscle stored in the body.



U. OF I. S. S. FORM 3

Cost per pound Gain.

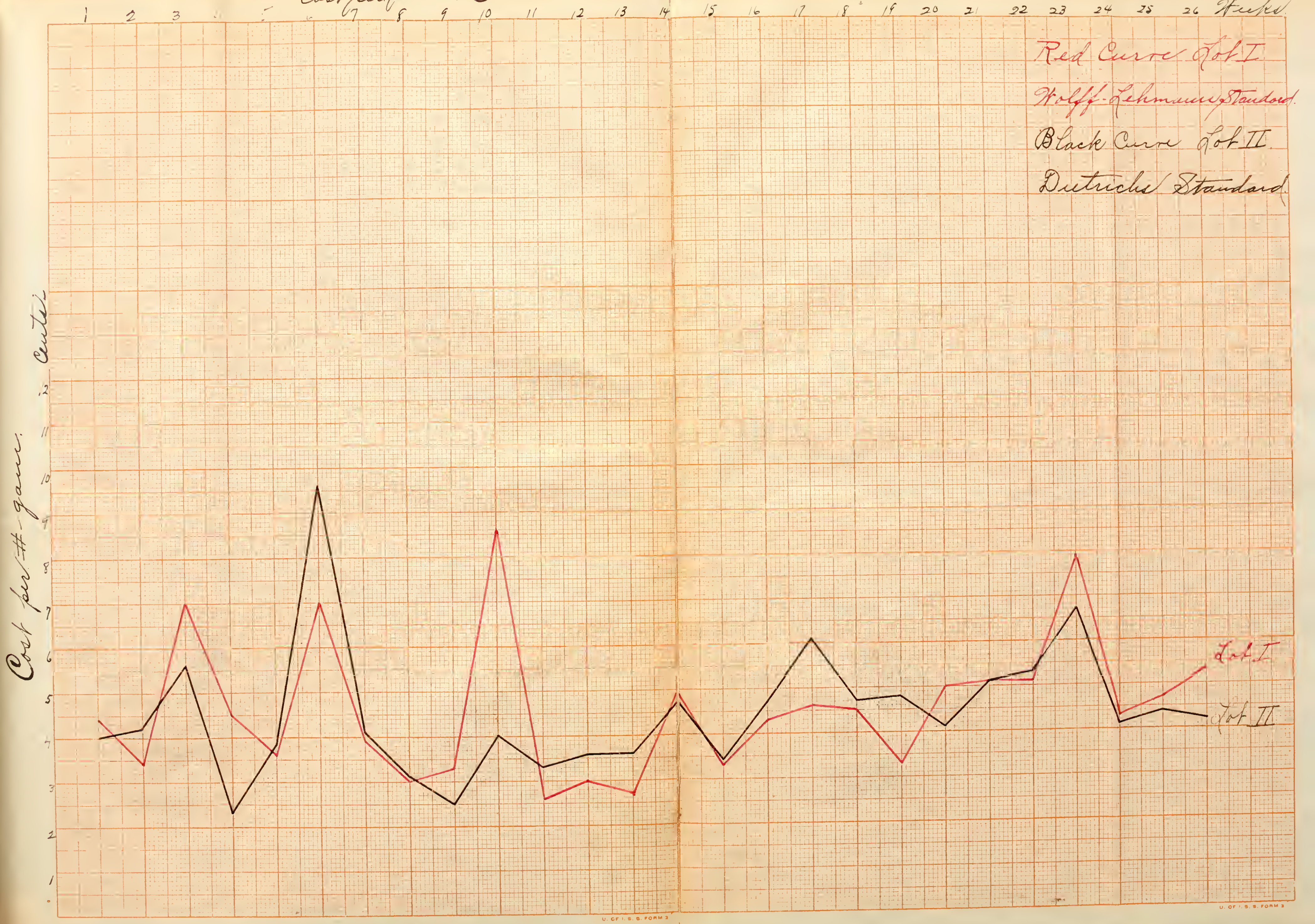


Chart IX

TABLE X - LOT I FEED CONSUMED

Wk	Corn	R.D.F	Tank	Bran	Total
1	30.1	14.8	9.7	2.3	56.9
2	30.7	15.4	9.8	3.3	59.2
3	36.	15.4	10.8	4.2	66.4
4	47.8	15.9	14.1	4.9	82.7
5	52.5	17.1	15.6	5.6	88.8
6	56.4	19.1	17.3	5.6	98.4
7	59.8	20.	17.6	5.8	103.2
8	61.9	22.4	15.4	6.6	107.3
9	65.	32.7	11.9	8.4	118.
10	70.2	35.	13.2	9.2	127.6
11	60.5	30.	11.2	8.5	110.2
12	70.8	35.3	11.2	9.1	126.4
13	80.2	40.5	11.2	10.	141.9
14	86.1	43.1	10.7	9.5	149.4
15	91.5	46.9	10.5	10.5	159.4
16	99.1	49.9	10.6	10.1	169.7
17	109.4	55.1	11.8	6.3	182.6
18	119.8	62.1	13.5	1.2	196.6
19	153.4	39.	16.		208.4
20	184.9	35.	18.3		238.2
21	224.	35.	20.		279.
22	231.	35.	13.9		279.9
23	225.	35.	1.4		261.4
24	214.	35.			249.
25	210.	35.			245.
26	210.	35.			245.
	2880.9	754.7	295.7	121.1	

TABLE XI - LOT II FEED CONSUMED

Wk	Corn	R.D.F	Tank	Bran	Total
1	28.7	14.2	6.8	2.9	52.6
2	31.8	15.4	7.9	3.7	58.8
3	34.4	15.4	9.3	4.2	63.3
4	38.6	16.1	10.9	4.4	70.
5	44.4	17.5	12.1	5.6	79.6
6	47.6	19.7	13.	10.6	83.9
7	52.3	21.	14.	6.2	93.5
8	57.8	21.9	14.5	6.7	100.9
9	66.1	27.	16.	8.2	117.3
10	76.8	32.	17.6	8.9	127.3
11	87.9	36.1	19.4	9.4	143.8
12	94.7	47.9	21.2	11.3	175.1
13	103.9	56.1	23.2	12.3	205.5
14	115.3	57.9	25.1	12.2	210.5
15	123.2	62.5	27.7	10.8	224.2
16	140.1	66.	34.1	9.9	249.1
17	152.3	73.7	34.6	6.2	267.8
18	161.5	80.5	35.3	3.4	290.7
19	211.6	48.	34.9	.1	294.6
20	254.2	42.	26.9		323.1
21	307.5	42.	16.8		366.6
22	307.	42.	5.5		354.5
23	302.	42.	1.		345.
24	302.	42.			344.
25	302.	42.			344.
26	331.	42.			373.
	3775.7	1022.9	427.7	132.	

COST PER POUND GAIN

In Chart IX and Table IX is outlined the cost per pound of the gain in both lots. On the left of the chart the figures indicate the cents and the curve for the 26 weeks shows the same kind of variation that the number of pounds of feed per pound of gain shows in Chart VIII. This chart is in direct propartion to the pounds of gain and in consequence has a similar appearance. The difference in the two lies in the fact that Lot II makes better gains on an equal amount of feed than does Lot I. In consequence Lot II makes cheaper gains than Lot I. The average cost per pound gain for Lot I was 4.6 cents per pound while the average cost per pound gain in Lot II was 4.4 cents per pound. This.2 of a cent per pound gain on the 1391 pounds gain in Lot 2 amounts to $2.78.

The cost of the feeds that I have used in estimating the price per pound of feed was corn 56 cents per bushel, $28.00 per ton for Red Dog Flour, $22.00 per ton for Bran and $40.00 per ton for Tankage. Figuring from the Table X at the prices given the Lot I consumed $46.63 worth of feed while Lot II consumed 62.07 worth of food. Had the feed of Lot II been as large in proportion as that of Lot I, $2.78 more would be added, but since this is not the case the profit on Lot II is greater by $2.78, besides the greater amount of fat produced which is the greater factor.

The selling price I have counted as 9 cents per pound clear of all shipping expenses for both lots. This price is hardly fair for both lots as the hogs of Lot II would class above those of Lot I on the market. Nevertheless 9 cents is used in calculat-

ing the profits. As there was 1019 pounds made upon the feed of Lot I and 1391 pounds made upon the feed of Lot II, lot I brought $91.71 for this gain shile Lot II brough $125.20. Subtracting the cost price of the feed for Lot I from the selling price for the gain made while eating the grain the profit made by this lot was $45.08. Subtracting the same cost of the feed for Lot II, $62.07 from the $125.20 leaving a profit of $63.12. Thus the profit of the Lot II equals more than the cost of the feed which is $62.07. In the case of Lot I the profit, $45.08, is less than the cost of the feed, $46.63.

In figuring the per cent between the cost of the feed for Lot I and the profit gained on that lot to be about 90 per cent made on the cost of feed while in Lot II the profit is about 102 per cent on the cost of the feed. The difference in the two is 12 per cent in favor of Lot II on the cost of the grain fed. From these facts then it must be plainly seen that the Lot II is a much better paying standard to follow than is the standard by which Lot I was fed.

TABLE XII

Cost of Feeds.

Corn (Bu. 56#) = 56 ¢

Red Dog Flour Ton = $28.00

Tankage = $40.00

Bran Ton = $22.00

Cost per pound Gain Lot I 4.6 cents

Cost per pound Gain Lot II 4.4 cents.

Selling price clear 9 cents per pound on gain made from feed.

Cost of Corn fed as determined from Table XII and from Tables X for Lot I and Table XI for Lot II.

LOT I

2881 pounds Corn = $28.81

754.7 " Red Dog Flour = 10.57

295.7 Tankage = 5.92

121.1 Bran = 1.33

$45.63

Selling price for the gain made from the feed at 9 cents = $91.71

LOT II

3776. pounds Corn = $37.76

1022 " Red Dog Flour = 14.31

427.7 Tankage = 8.55

132 Bran = 1.45

Selling price for the gain on Lot II = $125.20

CONCLUSION

In drawing conclusion as to the outcome of the experiment Lot II came out by putting on more pounds of weight in the six months at a smaller cost per pound by .2 of a cent. Again at the close Lot II would bring more on the market if sold in larger numbers for they were heavier and in better market condition for fat lard hogs. Now since these things are true no other conclusion can be drawn other than that the feeding standard as given in University of Illinois Agricultural Experiment Station Circular number 126 is superior to the old standard as proposed by the German Investigators, Wolff and Lehman. In this small number of 5 pigs in Lot I feeding them as Lot II were fed the gain would have been 112.5 pounds more had they done as well as the hogs of Lot II. This would have been the case and the profits on 112.5 pounds would be nearly $5.25 more than was realized by feeding them by the Wolff Lehmann Standard.

The pigs of Lot I always gave the more trouble and required more care in feeding to keep them on feed and going as well as they did. When it is remembered that for the first ten weeks the ration was to large for the pigs toget along well, and after that time it dwindles to an amount not sufficient for greatest gains and the general poor outsome of the lot, no other conclusion but that Professor Dietrich's standard excells the Wolff Lehmann.

Among the many little peculiarities noted during the experiment was one more pronounced than all the rest. That one was that when a stranger stood near the feeding trough of Lot II the

large Yorkshire barrow always turned away from his feed and refused to eat until the individual moved away. He was the King pig of the lot and all others did exactly as he wished them to do.

In Lot I the Largest hog had his way but the smallest hog was the most gentle and could be teased into a fight at any time. The experiment proved to be quite a task lasting for six months as it did, but never did I feel better than when the pigs were coming along well. With the feeding task completed, one of the pleasures of this years work was finished.

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